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TRANSCRIPT OF RECORD.

IN THE

UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SEVENTH CIRCUIT.

OCTOBER TERM, A. D. 1893.

163-670 No. 112.

HERSCHEL CAVERLY, ADMINISTRATOR OF THE ESTATE OF SARAH CAVERLY, DECEASED,

Appellant,

vs.

DEERE AND COMPANY,

Appellee.

MR. D. B. NASH,

Counsel for Appellant.

MESSRS. BOND, ADAMS, PICKARD & JACKSON,

Counsel for Appellee.

Appeal from the Circuit Court of the United States for the Northern District of Illinois, Southern Division.

TRANSCRIPT OF RECORD FILED MAY 4, 1893.
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IN THE

CIRCUIT COURT OF THE UNITED STATES,

FOR THE NORTHERN DISTRICT OF ILLINOIS,

SOUTHERN DIVISION.

HERSCHEL CAVERLY, ADMINISTRATOR OF THE ESTATE OF SARAH CAVERLY, DECEASED,

vs.

DEERE AND COMPANY.

} *In Equity.*

MR. D. B. NASH,

For Complainant.

MESSRS. BOND, ADAMS, PICKARD & JACKSON,

For Defendant.

163-679

Office Supreme Court U. S.
FILED,
JAN 31 1896
JAMES H. McKENNEY,
CLERK.

SUPREME COURT

163-679

OF THE

UNITED STATES.

OCTOBER TERM, 1895.

No. 877

Exparte HERSCHEL CAVERLY,
Administrator of SARAH CAVERLY, *Deceased.*

Petition for Writ of Certiorari requiring the United States Circuit Court of Appeals for the Seventh Judicial Circuit to certify to the Supreme Court for its review and determination the case of HERSCHEL CAVERLY, Administrator, etc., *vs.* DEERE & COMPANY.

D. B. NASH,
Counsel for Petitioner.

1 UNITED STATES OF AMERICA.

CIRCUIT COURT OF THE UNITED STATES, SOUTHERN DIVISION, NORTHERN DISTRICT OF ILLINOIS.

Pleas and proceedings in the Circuit Court of the United States in and for the Southern Division of the Northern District of Illinois, at a term thereof begun and held at the court room in the Government building in Peoria, in the said district, on the third Monday in the month of October, 1892, and of our Independence the 117th year. Placita.

Be it remembered that heretofore, to-wit: On the 9th day of August, A. D. 1890, there was filed in the office of the clerk of said circuit court a bill of complaint, in words and figures following, to-wit:

CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF ILLINOIS, SOUTHERN DIVISION.

IN THE SEVENTH JUDICIAL CIRCUIT.

To the Judges of the Circuit Court of the United States for the Northern District of Illinois, Southern Division.—In Equity:

Herschel Caverly, of Moline, Rock Island County, Illinois, and who was duly appointed administrator of the estate of Sarah Caverly, deceased, and in his capacity of such administrator brings this his bill into court against Deere and Company, a body corporate created and existing in due form of law in the State of Illinois, and having its chief place of business at Moline, Rock Island County, Illinois. Bill of Complaint, filed Aug. 9, 1890.

2

Bill of Complaint, filed Aug. 9, 1890.

And your orator further complains and says, on information and belief, that Amos K. Caverly, of the county and State aforesaid, was the original inventor of a certain new and useful improvement in machines for rounding bent handles and other wood work, which invention is fully described in the specifications of the letters patent hereinafter mentioned, and which is named therein, "Improvement in Machines for Rounding Bent Handles," and which invention was not known or used in this country, and was not patented, or described in any publication in this or any foreign country before his invention thereof, and was not in public use or on sale more than two years prior to his application for letters patent of the United States therefor.

And your orator further shows, on information and belief, that on the 23rd day of November, 1883, the said Amos K. Caverly, in accordance with the United States Statutes in such case made and provided, made application at the Patent Office of the United States for said letters patent, and that he, the said Amos K. Caverly, before and at the time he made such application for such letters patent, was a citizen of the United States, and of Rock Island County, Illinois.

And your orator further shows, on information and belief, that on the 12th day of November, 1883, and before the issuing of said letters patent, the said Amos K. Caverly, by an instrument in writing duly signed and executed by him, and bearing date the 12th day of November, 1883, did assign to said Sarah Caverly his right, title and interest in said invention and "improvement," and that said instrument was duly recorded in the United States Patent Office on the 12th day of January, 1884; that said Sarah Caverly at the time of such assignment was a citizen of the United States, and of the county and State aforesaid.

3

And your orator further shows, on information and belief, that on the 5th day of August, 1884, letters patent, in due form of law, were, on the application of said Amos K. Caverly, as hereinbefore set forth, issued and delivered to said Sarah Caverly, in the name of the United States of America, and under the seal of the Patent Office of the United States, and were signed by the Secretary of the Interior of the United States, and countersigned by the Commissioner of Patents, and which is numbered 303,116, and that said letters patent did grant to said Sarah Caverly, her heirs and assigns, for the term of seventeen years, the exclusive right to make use, and vend said invention and "Improvements" throughout the United States and the Territories thereof.

The profert of said letters patent, and the specifications thereof, are hereby made and tendered to the end that the same may become and constitute a part of this bill, also, profert is made of said written assignment for same purpose.

And your orator further shows, on information and belief, that said defendant, before and after the first day of January, 1885, and up to the commencement of this suit, and during and within the term of seventeen years mentioned in said patent, and within those parts of the United States and Territories thereof, covered by the grant of said letters patent to said Sarah Caverly, did infringe said letters patent, and did unlawfully and wrongfully, and injuriously, and with the intent to deprive her, the said Sarah Caverly, of her lawful and rightful profits, royalties, benefits and incomes from said invention and "Improvement," and to deprive her of
4 the profits, royalties, benefits and incomes, which she might and would, otherwise, have derived from the sale of rights to make and use said invention and "Improvement," and without her license and against her will, and did make and did use, and cause to be made, and cause to be used, said invention and "Improvement" as and for and in a machine and apparatus comprehending and embracing the principles of said invention and "Improvement," and covered by said letters patent, and did make and did use, and cause to be made, and cause to be used said invention and "Improvement," as and for, and in a machine and apparatus in rounding, and shaping, and dressing a very large number of bent plow handles, and cultivator handles, and bent handles of implement of like nature, which were used by said defendant in the manufacture of plows and cultivators, and impliments of like nature, and which, also, were sold by defendant to others for the like purpose of manufacturing plows, and cultivators, and impliments of like character, but your orator has not sufficient knowledge with respect to the number of bent plow handles, and cultivator handles, and other handles of like impliments, which said defendant so rounded, and shaped, and dressed, to enable him to set forth the same, but your orator avers, on information and belief, that such number was very large, and your orator further avers on information and belief, that said defendant made and realized, and intended to make and realize a very large amount of profits from the making and using of said invention and "Improvement" in the manner aforesaid, but your orator has not sufficient knowledge in relation to the amount of such profits so realized by said defendant to enable your orator to set forth the same, and your orator further avers that the said Sarah Caverly was deprived of a large amount of profits, royalties,

benefits and incomes by reason of the foresaid infringement,
5 by said defendant, of said letters patent, and incurred large damages thereby.

And your orator further shows, that said Sarah Caverly departed this life on the 24th day of March, 1890, at the county and State aforesaid; that at the time of the death of said deceased she was the owner, holder, and the exclusive possessor of all the right, title and interest in said invention and "improvement," and said letters patent, and had been such owner, holder and in such exclusive possession thereof at all times since the date of the said assignment aforesaid, and the issuing and delivery to her of said letters patent.

And your orator further shows that, having been duly appointed administrator of the estate of said deceased, as aforesaid, has become thereby, and by operation of law, vested with the legal right, title and interest in and to said letters patent, and with the exclusive right of possession thereof; and, in like manner, your orator has become vested with the legal right, title and interest in and to all claims for compensation and damages, and for an accounting for the same, against said defendant, which said deceased owned, held and possessed at the date of her decease aforesaid, by reason of said defendant's infringement of said letters patent, as hereinbefore set forth, and also for compensation and damages, and for an accounting for the same, which have accrued, and are still accruing, by reason of such infringement, since the date of the death of said deceased, in favor of said estate, against said defendant.

And your orator further shows, that said defendant has been requested to desist from the use of said invention and "improvement," and to account for the damages which said Sarah Cav-
6 erly sustained prior and up to the time of her said decease, and also for such damages as have accrued to said estate since such decease.

Your orator further shows, that he fears and has reason to fear that, unless said defendant is restrained by writ of injunction, issuing out of this court, defendant will continue to make and use said invention and "improvement," as for, and in a machine and apparatus in the manner, and to the extent, and with the intent and for the purposes hereinbefore set forth, and thereby cause irreparable injury to the aforesaid exclusive rights granted by said letters patent, and vested in your orator, as hereinbefore set forth.

Wherefore, your orator prays your Honors to grant unto your

orator a preliminary, and also a permanent injunction, issuing out of and under the seal of this Honorable Court, directed to said defendant, the said Deere and Company, and strictly enjoining said defendant and its officers, agents and employees not to, in any manner, make or use said invention and "improvement" covered by said letters patent.

And your orator further prays, that said defendant, by decree of this court, may be compelled to account for and to pay over to your orator all the gains and profits which said defendant has derived or shall have derived from making and using said invention and "improvement" covered by said letters patent, as and for, and in a machine and apparatus.

Also that defendant may be decreed to pay all damages which said deceased incurred prior and up to the date of her death, and also all the damages which said estate, and your orator, as the legal representative of said deceased, have so incurred by reason and on account of said defendant's infringement of said letters patent, and also that said defendant may be decreed to pay the costs of this suit, together with attorney's fees herein, and that your orator may have such other and further relief as the equity of the cause
7 or the Statutes of the United States may require, and to the court may seem just.

To the end, therefore, that said defendant may, if it can, show why your orator should not have relief hereby prayed, and may, under the oath of its proper officers, and according to their best and utmost knowledge, remembrance, information or belief, full, true, direct and perfect answer make to such of the several interrogations hereinafter numbered and set forth, as by note hereunder written, defendant is required to answer, that is to say:

1. Whether, at any time after the first day of January, 1885, the defendant made or used, or caused to be made or used, any machine or apparatus comprehending or embracing the said invention and "Improvement," or the principles thereof covered by said letters patent, for and in rounding, shaping or dressing bent plow handles, or bent cultivator handles, or bent handles of impliments of like nature, and, if so, how many in number of such bent handles did the defendant so round, shape, and dress by the use of such machine and apparatus, and how many such rounded, shaped and dressed bent handles did defendants use use in the manufacture of plows, and cultivators, and impliments of like nature, and, also,

how many thereof did defendant vend and sell to others, up to the
5 24th day of March, 1890?

And may it please your Honors to grant unto your orator a writ of subpœna *ad respondendum*, issuing out of and under the seal of this Honorable Court, and directed to the defendant, the said Deere and Company, commanding defendant to appear, and make answer to this bill of complaint, but not under oath (except to said interrogatory numbered one (1), your orator expressly waiving answering under oath, save the exception aforesaid) and to perform and abide by such order and decree herein as to the court may seem just.

8 And your orator will ever pray.

HERSCHEL CAVERLY, Administrator,
Complainant.

D. B. NASH,
Solicitor for Complainant.

ADAM PLEASANTS,
Of Counsel.

9 The defendant, Deere and Company, is required to answer the interrogatory numbered 1.

D. B. NASH,
Solicitor for Complainant.

STATE OF ILLINOIS, }
COUNTY OF ROCK ISLAND. } ss.

Herschel Caverly, being duly sworn on oath, doth depose and say, that he is complainant in the foregoing bill of complaint, which is subscribed by him; that he has heard the same read, and knows the contents thereof, and that the same is true of his own knowledge, except as to matters which are therein stated to be based on information and belief, and that as to those matters he believes it to be true.

HERSCHEL CAVERLY.

Subscribed and sworn to before me by Herschel Caverly, this 7th day of August, 1890.

[SEAL]

M. J. MCENIRY,
Notary Public in and for Rock Island County, State of Illinois.

Endorsed, filed August 9, 1890.

W. H. BRADLEY,
Clerk.

By E. P. SLOAN,
Ch. Dep. Clerk.

13 And be it further remembered that afterwards, to-wit: On the 2nd day of October, 1890, there was filed in the office of the clerk of said circuit court, an answer, in words and figures following, to-wit:

The Answer of Deere & Company, Defendant, to the Bill of Complaint of Herschel Caverly, Admr., &c., Complainant.

14 This defendant, now and at all times hereafter, saving and reserving unto itself all benefit and advantage of exception that may be had or taken to the many errors, uncertainties and insufficiencies in complainant's said bill of complaint contained, for answer thereunto, or unto so much or such parts thereof as this defendant is advised is material or necessary for it to make answer unto, answering says as follows: Answe Oct. 2,

First.—This defendant admits upon information and belief that Letters Patent of the United States, No. 303,116, dated August 5, 1884, for Improvements on Machines for Rounding Bent Handles, were granted and issued to Sarah Caverly, as the assignee of Amos K. Caverly, substantially as in said bill alleged, except that it does not admit that the said Amos K. Caverly was the true and original inventor of the matters and things shown, described and claimed in said L[illegible]ers Patent, as alleged in said bill.

15 *Second.*—This defendant further answering, says that it has no information save that derived from the bill, relative to the death of the said Sarah Caverly, nor as to the appointment of the complainant as the administrator of the estate of said Sarah Caverly, whereby the said complainant became vested with the rights and titles in relation to said patent and claims thereunder, as set forth in said bill, and this defendant therefore insists upon full proofs as to all such matters being made.

Third.—This defendant further answering, denies that it has

Answer, filed Oct. 2, 1890.

at any time infringed said letters patent or the rights of the said Sarah Caverly or of said complainant as administrator as aforesaid under the same, and it denies that it has made or used or caused to be made or used, any machines or apparatus comprehending or embracing the principles of the said supposed invention covered by said letters patent, and it denies that any acts or doings on the part of this defendant have deprived the said Sarah Caverly, or said complainant, as administrator aforesaid, of any profits, royalties, benefits or incomes; and it denies that it has realized, or intends to realize, any profits whatever from making and using the said supposed invention by rounding or shaping or dressing plow handles or cultivator handles or handles of implements of like nature on or in a machine or apparatus containing and embodying the said supposed invention.

Fourth.—This defendant further says that the interrogatory attached to the bill and required to be answered by this defendant has been fully answered in the last preceding clause of this, its answer to said bill.

Fifth.—This defendant further answering, avers on information and belief that in view of the art as it existed at the time of making application for the said Letters Patent No. 303,116 for the said supposed invention, it did not require invention, but only
16 ordinary mechanical skill to construct a machine for rounding bent handles like that shown and described in said letters patent.

Sixth.—This defendant further answering, denies upon information and belief that the said Amos K. Caverly was the true, original and first inventor of the matters and things shown, described and claimed in said Letters Patent No. 303,116; and it avers upon information and belief that long prior to the said supposed invention by the said Amos K. Caverly, the same matters and things, or some material and substantial part or parts thereof, were shown and described in Letters Patent of the United States, as follows:

No. 24,131—Granted and dated May 24, 1859, to George W. Matthews, for Wood Moulding Machine.

No. 114,170—Granted and dated April 25, 1871, to Elbridge G. Matthews, for Improvement in Machines for Forming Plow Handles.

Answer, fi
Oct. 2, 189

No. 118,931—Granted and dated September 12, 1871, to Eminel P. Halsted, assignor, etc., for Improvement in Cutterheads for Wood Working Machines.

No. 140,355—Granted and dated July 1, 1873, to Arthur B. Farquhar, for Improvement in Machinery for Making Plow Handles.

No. 183,838—Granted and dated October 31, 1876, to Edmund A. Conner, for Improvement in Machines for Shaping Plow Handles.

Seventh.—This defendant further answering, avers upon information and belief that the said supposed invention had been in public use in this country for more than two years prior to the making of application by the said Amos K. Caverly for his said patent, and that the same matters and things, or some material
17 part or parts thereof, were known to and used by the Grand de Tour Plow Company, of Dixon, Illinois, and used by it at said Dixon in the State of Illinois.

Also so known to and used by B. F. Avery & Sons, of Louisville, in the State of Kentucky, and used by it at the said Louisville, Kentucky.

Also so known to and used by Hermann Fletcher, residing at Louisville, Kentucky, and used by him at said Louisville, Kentucky.

Also so known to and used by the Louisville Agricultural Works, of Louisville, in the State of Kentucky, and used by it at said Louisville, Kentucky.

Also so known to and used by John Morey, now residing at Moline, in the State of Illinois, and used by him at Dixon, Illinois.

Without this, that any other matter or thing whatsoever in said bill of complaint contained, material or necessary for this defendant to make answer unto, and not herein or hereby well and sufficiently answered unto, confessed and avoided, traversed or denied, is true to the knowledge and belief of this defendant. All which matters and things this defendant is ready to aver, maintain and prove, as this Honorable Court shall direct, and humbly prays

nswer, filed
ct. 2, 1890.

to be hence dismissed with its reasonable costs and charges in that behalf most wrongfully sustained.

DEERE & COMPANY,
[SEAL] *By* GILPIN MOORE,
Vice President.

BOND, ADAMS & JONES,
Solicitors for Defendant.

STATE OF ILLINOIS, }
COUNTY OF ROCK ISLAND. } ss.

18 C. H. Pope, being duly sworn, deposes and says that he is the Assistant Secretary of Deere & Company, the defendant named in the foregoing answer; that he has read said answer and the same is true of his own knowledge, except as to such matters and things as are therein stated upon information and belief, and as to such matters and things, he believes it to be true.

C. H. POPE.

Subscribed and sworn to before me this 1st day of October, A. D. 1890.

P. C. SIMMON,
[SEAL] *Notary Public.*

19 Endorsed, filed October 2, 1890.

WM. H. BRADLEY,
Clerk.

By E. P. SLOAN,
Ch. Dep. Clerk.

And afterwards, to-wit: On the 20th day of October, 1890, there was filed in the office of the clerk of said court, a replication, in words and figures following, to-wit:

UNITED STATES CIRCUIT COURT, NORTHERN DISTRICT OF ILLINOIS, SOUTHERN DIVISION.—*In Equity.*

ication,
Oct. 20, '90

This complainant, saving and reserving to himself all manner of advantage of exception to the manifold insufficiencies of the said answer of defendant, for replication thereunto saith, that he

will aver and prove his said bill to be true, certain and sufficient in law to be answered unto; and that the said answer of defendant is uncertain, untrue and insufficient to be replied unto by this complainant; without this, that any other matter or thing whatsoever in said answer contained, material or effectual in law to be replied unto, confessed and avoided, traversed or denied is true, all of which matters and things this complainant is and will be ready to aver and prove, as this Hon. Court shall direct; and humbly prays, as in and by his bill he hath already prayed. Replication, filed Oct. 20, '90.

HERSCHEL CAVERLY, Administrator,
Complainant.

D. B. NASH,
Solr. and Counsel for Complainant.

Endorsed, filed Oct. 20, 1890, by

WM. H. BRADLEY,
Clerk.

By E. P. SLOAN,
Ch. Dep. Clerk.

28 And afterwards, to-wit: At the October term of said court, on the 18th day of October, 1892, before the Honorable Henry W. Blodgett, Judge, as aforesaid of said court, the following further proceedings were had in said cause, to-wit:

Herschel Caverly,
Administrator, Etc.,
vs.
Deere and Company. } *Equity.*

This day came the complainant, by D. B. Nash, his solicitor, and also came the defendants, by Mr. Adams, of the firm of Bond, Adams and Jones, their solicitors; and this cause being ready for trial the same was submitted to the court and heard upon the pleadings, proofs and arguments of counsel, and the court took the same under advisement. Order.

9 And afterwards, to-wit: At Chambers, in Chicago, before the Honorable Henry W. Blodgett, Judge, as aforesaid of said court, on Monday, October 31, 1892, the following proceedings were had:

Order.

This cause having been heard upon pleadings and proofs and arguments of counsel at the late October term, 1892, of this court, and the same taken under advisement, and the court being now fully advised in the premises, doth find that said bill is without equity, and that the equities of the case are with the defendants.

It is therefore ordered and considered by the court that this cause be dismissed at the costs of said complainant for want of equity, and that defendant recover of the complainant its costs and charges to be taxed, and that it have execution therefor, and it is further ordered that this decree take effect as of the last day of the late October term.

BLODGETT *J.*:

Opinion.

30 This is a bill in equity charging defendants with the infringement of Patent No. 303,116, granted August 5, 1884, to Sarah Caverly, assignee of Amos K. Caverly, for a "Machine for Rounding Bent Handles," and for an injunction and accounting. The inventor says of the invention covered by the patent: "My invention relates to machines for forming such round or oval or bent-wood handles and other wood-work, whether bent or straight; and it consists in a cylindrical cutter-head mounted on an ordinary frame, and revolving vertically by suitable gearing, constructed, preferably, of two cylinders or disks bolted together, having in the center of its periphery a groove the shape and size of the curve or oval on the dressed handle, and the cutter-knives adjusted from both sides of the cutter-head into the groove."

"The cutter-head is of cylindrical form, made of steel, iron, or other suitable material, constructed, *preferably, of two cylindrical pieces, or disks*, each having such a curved or concaved cut, on its inner face, extending from beyond its diameter to its periphery, that when they are placed with their curved faces together the curves or concaves in the disks will form a groove in the head
31 the size and shape of the dressed handle. When the cutter-

head is constructed in two pieces, the latter are securely fastened together by bolts passing through bolt-holes in each, and nuts, or otherwise prevented from having independent motion. Each of the disks forming the cutter-head has one or more openings or ditches, flaring at the top on the outer face thereof, decreasing in width in their inward progress, and terminating at the bottom in narrow crescent-shaped openings in the curve on the inner face of the disk, the metal being concaved and sharply inclined at one end of the recesses, to permit the ready shedding of the chips from the cutter, and convexed and inclined in like manner at the opposite end to form beds for the concaved knives.

"The cutter-knives are thin plates of steel, beveled at their cutting ends like ordinary plane blades or bits, concaved on their cutting-faces to fit a convexed bed at one end of the openings in the cutter-head, adjustable thereon to regulate the depth of their cutting action by set-screws, working through a slot, in the knives, and secured by said set-screw to the head.

* * *

"The number and mode of adjustment of the cutter-knives used may be varied, as the size of the head or the character of the wood to be shaped may render expedient; I have found that, for general purposes, six knives—three in each half of the head, 32 the knives thereof on one side alternating in their appearance on the concave with those on the other—is a very satisfactory and efficient arrangement. The bent handle is held by the operator on the rest block, and guided by him into the groove in the head, which, revolving rapidly—say two thousand revolutions per minute—by the action of its cutters, shapes the side of the handle exposed to the cutters the form of said groove. The handle is then turned over and guided into the groove in like manner, shaping the other side and completing the rounding of the handle.

* * *

The knives are adjusted to the disks of the cutter-head upon sharply-inclined beds formed in one end of the openings in the disk, thus presenting the cutting-edges of the knives diagonally to the plane of the curved portions of the disks, similar to the manner in which plane bits are secured to the plane frame, the incline on the other side forming a channel for the discharge of the chips made by the cutters, and are adjustable back and forth within the disks by set-screws working in slots in the knives. By this longitudinal

adjustment the depth of the cutting action of the knives may be regulated."

The patent has four claims, which are:

1. A cutter-head, consisting of a cylinder with a groove in the center of its periphery and recesses from either side, terminating in narrow openings on such groove, for the adjustment of the cutter-knives.

33

2. A cutter-head constructed of two cylindrical disks, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disk, diminishing in width as they progress, and terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with knives secured in the openings.

3. A cutter-head constructed of two cylindrical disks, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disk, diminishing in width as they progress, terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with slotted knives secured in the openings and adjustable longitudinally therein by set-screws.

4. The combination of the frame, the cutter-head with groove in its periphery and one or more openings from each side, terminating in a narrow slit on the groove, one or more knives so curved that the bevel on their cutting ends presents a flat surface, and gearing by which the head is actuated."

34 The defenses are:

1. That the claims are void for want of patentable novelty.

2. That the patentee was not the original and first inventor.

3. That the invention was in public use by the inventor and others more than two years before the patent was applied for.

4. That the defendant does not infringe.

An attempt is made by the proofs to carry this invention back to about the year 1868, or 1870, but the proof introduced for that purpose is of so uncertain and unsatisfactory a character that I do not consider it as establishing the invention at an earlier period than the date of the application for the patent, which was in November, 1883.

This proof comes from the children of the patentee Caverly, mainly the testimony of the three sons, Herschel, Ralph, and Thomas, and a daughter Vesta, who testified in substance that their father made a model of his machine as early as 1870, and made an operative machine as early as 1871. At that time Herschel was about fifteen years old, Ralph was about thirteen, and Thomas about nine years old, and the daughter upwards of
35 twenty years old. No remnants of the old machine or model are produced. No one is called, except these members of the family, who ever saw either the model or the operative machines, and although the operative machines required castings and iron work which Mr. Caverly, not being an iron worker but a wagon maker by trade, would have required the services of some other person to make for him, or at least to make the castings, yet, none of the persons who in any way made any of these parts are called as witnesses.

The witness, Herschel Caverly, testifies that the working machines made by his father, one or more of them, were taken to Deere & Company's plow shop, and also to Harris's jobbing shop and there tried by the application of power, but no one is called from those shops who ever saw or heard of such application.

Neither of these witnesses are mechanics or accustomed to machinery, one of them is a lady who is not shown to have any special knowledge of mechanical matters or more than women generally have, and it seems to me impossible that they can carry in their memories the peculiar characteristics of this machine so that the court can say from their testimony that it is clearly established from the proof that this invention was made so long prior to the application for the patent. They may have seen a cutter-head, or a model of a cutter-head, made by their father, but neither of them say they know the angle at which the cutter-bits were set. They say that the illustrative model produced in evi-
36 dence, and which has been made since this suit was com-

menced, is *like* the cutter-head made by their father, and the same may be said of the "Grand de Tour," "Louisville" and "Moline" cutter-heads which are in evidence.

To carry the date of the invention back of the application for the patent, the proof must be clear and convincing and this is far from coming up to that standard.

Upon the question of novelty, the proof shows that between 1865 and 1868, a cutter-head was made and put in use in the Grand de Tour plow works at Dixon, Ills, which showed a grooved head with cutters inserted in the groove, and in all respects operating like the machine covered be the patent, except that the cutting knives were set so that they struck the wood at a more obtuse angle.

One of these old cutter-heads is produced in evidence and the testimony in relation to it shows that it was used for five or six years, during which time many thousands of plow handles were shaped and finished upon it, and it did satisfactory work and was in use until that company adopted the practice of buying their plow handles ready finished, instead of finishing them themselves.

The proof also shows that between the years 1862 and 1867, a cutter-head was put in use in the plow factory of B. F. Avery, at Louisville, Ky., which was constructed in the same manner as Caverly says he prefers to construct his, that is, of two disks,
which having such a curved or concaved cut on its inner face
37 extending from its diameter to its periphery that when they
are placed with their curved faces together, the curves or concaves in the disks will form a groove in the head the size and shape of the article to be dressed, and this cutter-head is produced in evidence.

The cutters in this cutter-head were inserted into the groove from the sides of the disks, leaving openings for the chips to pass out from the cutters, and I can see no difference in principle between that cutter-head and the Caverly cutter-head. There may be a slight difference in the angle at which the knives struck the wood for the purpose of cutting, but this is all the difference, as the cutter knives in this head are inserted in the sides of the disks upon sharply inclined beds so as to present their cutting edges diagonally to the plane of the curved portion of the disks, thus meeting all the requirements of the Caverly construction.

Mr. C. H. Pope, the expert called by the defendant, testifies that this B. F. Avery & Company cutter-head was in all essential respects the same as the one used by the defendant, and which is charged here to be an infringement of complainant's patent, and that it was an operative machine and did good work.

The proof also shows that a similar cutter-head was put in use in the Louisville Agricultural Works between 1871 and 1872, and for some years after, and as long as said works were
38 kept in operation. For several years prior to 1880, a cutter-head was in use at the works of the Moline Plow Company at Moline, Ills., one-half of which was introduced in evidence. This cutter-head, like that shown by Caverly, was constructed with two disks so beveled as to form the groove when the disks were brought together, with openings in the sides of the disks through which the cutting knives were inserted into the groove, and in all respects, as far as construction and operation were concerned, they seem to have been the same as that covered by the Caverly patent, except that the angle at which the cutter-knives struck the wood was not quite as sharp as that covered by the Caverly patent. Mr. Bartlett, the intelligent, expert witness examined in behalf of complainant, testifies that he improved this cutter about 1888, and that after his improvement it was substantially like that described in the Caverly patent.

There is also in proof a patent granted March 31, 1863, to A. A. Wilder for "A machine for bending and checking hoop bolts" which shows a grooved cutter-head with knives, which the inventor says, "Are of chisel form and are fitted obliquely in slots and secured in proper position by set screws which pass through oblong slots in the cutters and into the parts as shown. The cutting edges of the cutters project a suitable distance beyond the beveled sides of the parts of the cutter wheel.

39 It will thus be seen that cutter-heads, either made of a single piece, with a groove of the proper form to shape the material to be operated upon, or made of two disks with beveled edges which when brought together form a groove, and furnished with knives inserted from the outside so as to present cutting edges in the groove for the shaping of the material, were old long before the date of this invention.

The first claim of the patent is for a cutter-head consisting of a cylinder with a groove in the center of its periphery and recesses

from either side terminating in narrow openings on such groove for the adjustment of the cutter-knives. All there is in this claim is certainly anticipated by the Wilder patent, from which I have just quoted. Evidently, from the reading of the Caverly patent, no particular shape is prescribed for the groove but it was to be of such shape as was desired for the shaping of the material to be operated upon.

The second and third claims of this patent are objected to by the defendant upon the ground that they are based upon a *preferential* mode of constructing the device.

The patentee says in his specifications, "The cutter-head B
40 is of cylindrical form, made of steel, iron, or other suitable material, constructed preferably of two cylindrical pieces or disks, &c."

In the language of the Supreme Court, in Sewell v. Jones, 91 U. S. 185: "This is not of the substance of the patent. A "recommendation is quite different from a requirement. The "latter is a demand, an essential, a necessity. The former is a "choice or preference between different modes or subjects, and is "left to the pleasure or the judgment of the operator. He may "adopt it.

"The principle is this: The omission to mention in the spec-"ification something which contributes only to the degree of bene-"fit, providing the apparatus would work beneficially and be worth "adopting without it, is not fatal, while the omission of what is "known to be necessary to the enjoyment of the invention is fatal.

"Accordingly, when the inventor says, 'I recommend the fol-"lowing method' he does not thereby constitute such method a "portion of his patent."

But without being hypercritical, I am unable to see what there is described in the specifications, or in the second, third, and fourth claims which was not in the older devices shown in the proof.

41 The Moline and Louisville cutter-heads were made with two disks; they had cutter-knives inserted through the recesses extending from the outer face of each disk into the groove and forming beds for the cutters and spouts for the discharge of the chips.

The slotted knives secured in the opening and adjusted longitudinally thereon by set screws. In other words, all the elements of the complainant's patent are found in these old cutter-heads of the Grand de Tour Plow Company, the Louisville Agricultural Works, The Avery Plow Company, the Moline Plow Company, and the Wilder patent, and most of them date back much earlier than even the witnesses for the complainant would carry Caverly's invention.

It is strenuously urged, however, on behalf of complainant, that the angle at which Caverly set his cutters was such as to make his machine operate better than either of the prior cutter-heads which have been referred to. The proof shows by the complainant's expert, Bartlett, that 45 degrees is the proper
42 angle at which the plane bit or cutter should be set in order to do the most effective and smoothest work, and the complainant's proof tends to show that the knives in the complainant's patent are set at about that angle. It may be sufficient to say that there is nothing in the complainant's patent which defines the angle at which the cutters are to be set. He says: "They are adjusted to the disks of the cutter-head upon sharply inclined beds, * * * presenting the cutting edges of the knives diagonally to the plane of the curved portions of the disks, * * * similar to the manner in which plane bits are secured to the plane-frame."

This language does not instruct the persons making a machine after the manner described in the Caverly patent as to what angle to set the cutters in order that they may do the best work. The Wilder patent of 1863 provided that the cutters should be fitted "obliquely" in slots through the cutter-head, and Mr.
43 Bartlett, plaintiff's witness, says that the common joiner's plane-irons had been set for very many years at about the angle of 45 degrees. This, then, was common knowledge, and all persons familiar with the use of the ordinary plane, knew that 45 degrees was about the right angle for effective cutting by the plane bits. Caverly comes no nearer in defining the angle at which the knives shall be set than does Wilder. Wilder says, "They are to be set obliquely," and Caverly says, "They are to be set diagonally" to the plane of the curved portion of the disks, so that neither of these patents instructs the public just at what angle the knife should be set, but leaves that to the skill of the mechanic who constructs the machine.

For some reason, the cutting bits in the Grand de Tour

head were set with but a slight incline to the face of the work. The Louisville, Avery, and the Moline cutters were set at something more than 45 degrees; some of the complainant's witnesses say they were set as high as 60 degrees, but whether these
44 knives are set at 45, 60, 80 or 85, it is but a matter of more or less, which was left to the judgment of the mechanic who constructed the machine, and is not a matter of invention.

It was not new to set plane irons, or other cutting tools, at an angle of 45 degrees, but, on the contrary was a very old mode of setting them. "It is the invention of what is new, and not the arrival at a comparative superiority or a greater excellence in that which is already known which the law protects as exclusive property, and which it secures by a patent."

Smith vs. *Nichols*, 21 Wall., 112.

The proof shows that all these old cutters worked, and worked fairly well, that a great deal of work was done upon them. It may be that the Caverly cutter-head is better by reason of the change in the angle of the cutters, but "The change was only in degree and consequently not patentable."

Guidet vs. *Brooklyn*, 105 U. S., 550.

45 The proof also shows that the "Moline cutter-head," one disk of which is in evidence, was in actual and public use in the defendant's shops at Moline more than two years before the application for the Caverly patent was made, and the proof also strongly tends to show that Caverly worked in the shop while it was so in use and that his place of work was so near where this cutter-head was located as to raise the presumption that he must have known of such use. But such public use would defeat his patent whether he knew of it or not. It being then abundantly shown from the proofs that grooved cutter-heads with cutting knives located in the groove and set with some degree of angularity were known and in use long prior to the alleged invention, by Caverly, there is no patented invention shown in complainant's patent because merely to change the angle of the cutters so they should conform to the old and well-known angle of the plane bits is only such an improvement on the old cutter-heads as any skilled mechanic could make and did not involve invention. If these old devices had been wholly inoperative and Caverly had discovered

that by setting the cutters at an angle of forty-five degrees they would become operative—that is, if the old ones produced no result and his produced a new result, then his device might have risen to the dignity of an invention. Opinion.

"The specification ought to distinguish the invention from things before known and to enable any one skilled in the art to make and use the same. Hogg vs. Emerson, 6 How., 437.

46 But the proof shows that these older devices not only worked but that they worked fairly well, and hence the most that could have been said for Caverly is that his machine was better than those that had preceded it if he had instructed the public by his patent at just what angle the bits should be placed. But the trouble with his patent is, he does not do this. He merely says they are "Sharply inclined" and "Presenting the cutting edges of the knives diagonally."

These directions fall far short of telling the angle at which the bits should be set. And, as I have already said, all the older cutter-heads showed their cutters set at an angle—the later ones much sharper than the earlier ones. And the instruction in the Caverly patent is no more definite as to the angle than that of the Wilder patent which directs that the cutters be set "obliquely."

I conclude from the proof in this case that the merit of setting the cutters at about the angle of a plane bit is really due to Mr. Bartlett, who quite closely approximated to that angle in his improvement of the old Moline cutter-head in 1880.

Mechanical improvements have also been made of late in this class of machines by making the groove deeper so that it holds the handle more firmly while being dressed. This improvement, however, did not come from any instruction given by this patent, but from experience in the use of the machine.

For these reasons, the suit will be dismissed for want of equity.

Petition of Complainant for Appeal.

The complainant in the above-entitled cause, conceiving himself aggrieved by the final decree rendered and entered of Petition for Appeal, filed Jan. 23, 1893.

Petition for Appeal, filed Jan. 23, 1893.

record in said cause on and as of the 19th day of October, 1892, doth hereby appeal therefrom to the United States Circuit Court of Appeals in the Seventh Judicial Circuit, and prays that this appeal may be allowed, and that a transcript of record and of the proceedings and evidence and exhibits in said cause duly authenticated, together with the material exhibits and devices introduced and used as evidence therein, may be sent to the United States Circuit Court of Appeals in said Seventh Judicial Circuit.

Dated this 21st day of January, 1893.

HERSCHEL CAVERLY,
Administrator, &c.,
Complainant.
By D. B. NASH,
His Solicitor.

Endorsed, filed Jan. 23, 1893.

S. W. BURNHAM,
Clerk.
By E. P. SLOAN,
Ch. Dep.

48 COMPLAINANT'S ASSIGNMENT OF ERRORS.

Assignment of Errors, filed Jan. 25, 1893.

The complainant in the above-entitled cause comes now, by D. B. Nash, his solicitor, and says, that there is manifest error in the record and proceedings had in said cause, and in the decree of court rendered and entered of record on and as of the 19th day of October, 1892, as follows, to-wit:

1. There is error of fact and of law in this; that a decree of court was rendered and entered of record against complainant, and in favor of defendant, dismissing complainant's bill of complaint for want of equity, and decreeing that defendant recover the taxable costs, whereas, by the law of the land, a decree of court ought to have been rendered in favor of complainant, establishing his cause of action and granting the relief prayed for.

Wherefore there is error.

2. There is error of fact and of law in this: The court found and decided that the invention of Amos K. Caverly, for which letters patent was issued on the 5th day of August, 1884, and be-

ing numbered 303,116, and sued upon in this cause, did not
49 possess patentable novelty; and that said inventor therein named was not the original and first inventor thereof; and that said invention was in public use more than two years prior to the inventor's application for patent therefor; and that defendant does not infringe the same; and whereas, such finding and decision are contrary to the evidence and to the facts proven thereby, and contrary to the law of the land applicable thereto.

Wherefore there is error.

3. There is error of fact and of law in this: The court found and decided, that the actual date of said invention of Amos K. Caverly did not ante-date the day of making application for patent therefor, to-wit, the 23rd day of November, 1883, and that the same did not date as early as the year 1869, or the year 1870, or the year 1871, or any year prior to 1883; whereas, such finding and decision are contrary to the evidence and to the facts established thereby, and to the law applicable thereto, and contrary to the express admissions and statements in defendant's printed argument submitted to the court at the trial of said cause, such admissions and statements being as follows:

"Several members of the Caverly family were called as witnesses in rebuttal, and from their testimony it appears that in 1869 Amos K. Caverly, the patentee, constructed a model, in 1870 another, in 1871 a full sized machine, another machine in 1884-5, and a third machine in 1876, all of which, models and machines, were substantially like the patent sued on. In fact their testimony is very strong as to the similarity between such old models and machines and the patented device." It thus appears from the testimony of the various members of the Caverly
50 family that the invention patented in 1884 was fully and completely developed in full sized working cutter-heads eight or nine years at least prior to the application of the patent."

And whereas, the evidence established, according to law, the actual date of said invention as early as the year 1871, or 1870 or 1869.

Wherefore there is error.

4. There is error of fact and of law in this: It is recited in the court's opinion as follows:

"Mr. Bartlett, the intelligent, expert witness, examined in behalf of complainant, testifies that he improved this (Moline Plow Company's cutter-head) about 1880, and that after his improvement it was substantially like that described in the Caverly patent."

"I conclude from the proof in this case that the merit of setting the cutters about the angle of a plane bit is really due to Mr. Bartlett, who closely approximated to that angle in his improvement of the old Moline cutter-head in 1880."

Whereas, such recitals of fact by the court are based upon manifest oversight and mistake of the evidence, and whereas, said witness, Mr. Bartlett, nowhere in the evidence, testifies that he constructed any cutter-head, or any improved cutter-head for the Moline Plow Company or for any other person or party in or about the year 1880; on the contrary he testifies, and the evidence shows without any conflict thereof, that he, Mr. Bartlett, constructed a machine for said Moline Plow Company in 1885 and at no time prior to that time, which substantially embodied the principles of said Caverly invention, and whereas, said Caverly letters patent bear date August 5th, 1884, on application filed November 23, 1883, said Bartlett machine constituted an infringing machine instead of being infringed by said inventor.

Wherefore there is error.

51 5. There is error of fact and of law in this: The court, as appears from the court's opinion, in finding and deciding matters of fact and matters of law as to the patentable novelty of said invention and as to the inventor therein named being the original and first inventor, and as to the public use of said [illegible] more than two years prior to the inventor's application for [illegible]ent, and as to the defendant infringing said invention, of all the recitals of the specification and claims therein without any reference to or any consideration of the drawings constituting a part thereof, and wholly excluded and eliminated said drawings and all reference thereto from such recitals and from all consideration in such findings and decision; and whereas, such recitals ought to have been construed with reference to such drawings, which by statute constitute a part of said specification; and whereas, such exclusion and elimination of said drawings in construing said recitals were contrary to law; and whereas, said drawings do in fact, as shown by undisputed evidence in said cause, fully, clearly and ex-

actly, within the meaning of the Patent Act, explain by illustration all recitals in said specification and all recitals in said claim; and whereas said specification and claims, when construed with reference to said drawings, and considered with reference to the evidence in said cause, do show and establish the fact that said invention does possess patentable novelty; also the fact that said inventor named in said letters patent was the original and first inventor, and also the fact that said invention was not in public use more than two years prior to said inventor's application for letters patent, also the fact that defendant does infringe.

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Wherefore there is error.

52 6. There is error of fact and of law in this: The court, as appears from the court's opinion, after eliminating the drawings and all reference thereto from the recitals of the specification and claims of said letters patent in construing the same as aforesaid, found and decided that such recitals after such elimination simply described said invention as being composed of a cylindrical body or cutter-head of some form, and having a groove in its periphery of some form and having knife-beds and knives thereon constructed in some form and adjusted to the groove in some form or manner, and that, as defendant's several exhibited devices produced in evidence and the B. F. Avery machine referred to in defendant's evidence and including the A. A. Wilder patent of date March 31, 1863, and numbered 38,085, each severally, were composed of a cylindrical body of some form, and having a groove in their periphery of some form and knife-beds constructed in some form and adjusted to the groove in some form or manner, there could be no difference in the mechanical construction, combination, and mode of operation of said invention and that of said several exhibited devices, and that of the B. F. Avery machine and that of the A. A. Wilder patent. Whereas, said recitals of said specification and claims, when construed with reference to said drawings, do fully, clearly, precisely and exactly, within the meaning of the Patent Act, show and describe the mechanical construction, combination, and mode of operation of said invention to be other, and materially and substantially different from that of said several exhibited devices, and that of the B. F. Avery machine, and that of the A. A. Wilder patent, and that of any other prior existing device or invention referred to or produced in evidence; and whereas, such material and substantial difference is fully supported and proven by the concurrent testimony of eight sev-
53 eral expert witnesses; and whereas, the only evidence in any

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conflict therewith being that of C. H. Pope, who testified that he was assistant secretary of said Deere & Company and that he was interested in the result of said cause.

Wherefore there is error.

7. There is error of fact and of law in this: The following recitals of the specification in said letters patent, and being included between lines 30 and 43 thereof inclusive, are set forth in the court's opinion as follows, to-wit:

"The knives are adjusted to the disks of the cutter-head upon sharply inclined beds formed in one end of the openings of the disks, thus presenting the cutting edges of the knives diagonally to the plane of the curved portions of the disks similar to the manner in which plane bits are secured to the plane frame, the incline on the other side forming a channel for the discharge of the chips, and are adjusted back and forth within the disks by set-screws working in slots in the knives."

In the foregoing quoted recitals of said specification the recitals "As shown in Figure III" are omitted and eliminated from the full and complete recitals of said specification included between said lines 30 and 43, inclusive, and the court, after referring to the recitals of said specification as quoted in the court's opinion and as they existed after such omission and elimination, found and decided that the same were too indefinite to instruct the public as to just what angle the bits should be placed in order to do the best work."

Whereas, the omitted and eliminated recitals "As shown in Figure III," had reference to the drawings; and whereas, the concurrent evidence of complainant's expert witnesses, and without any conflict of evidence on the part of defendant, show and prove that said drawings do fully, clearly, concisely and exactly, within the meaning of the Patent Act, illustrate and determine the position and degrees of angularity of the knife-beds and the cutter-knives thereon as adjusted to the groove, which the inventor intended the public should understand was the best position and angularity to accomplish the best operative results, and to enable the public to make, construct and use said invention; and whereas, the finding and decision of the court in construing said recitals and in eliminating the drawings and all reference to such drawings from said recitals as an illustrative part thereof, and in

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construing the same without reference thereto, are contrary to the law and the evidence; and whereas, no defence whatever was set up in defendant's answer to complainant's bill of complaint, setting forth any want of full, clear, concise or exact statement, withinthe meaning of the Patent Act, with respect to the description in said recitals or any recitals of said specification and claims, so as to enable the public to make, construct and use said invention or any material part thereof; and whereas, complainant received no notice, statutory or otherwise, of any such defence nor had any opportunity to procure any evidence disproving any such defence, and the sufficiency of the description of said invention in the recitals and claims being and constituting a question of fact and of evidence and not of construction, simply, by the court; and whereas, the consideration of said defence by the court was against complainant's objection thereto and contrary to law.

Wherefore there was error.

55 8. There is error of fact and of law in this: The court found and decided that, as the knives in defendant's exhibited devices are set at some degree of angularity to the groove, and as the cutter-knives in said invention are set to the groove at some degree of angularity, any existing difference between the angularity of such knives in said exhibited devices, and the angularity of said cutter-knives in said invention is simply in degree, and being a question of "more or less."

Whereas, it is shown by the evidence of complainant's expert witnesses, as well as by other and further evidence, and which is without any conflict of evidence produced in said cause, that the organic plan of construction of the component parts and of the combination and mode of operation of said exhibited devices is such that it is not mechanically practicable to construct a cutter-head in accordance with such organic plan, so as to obtain any other than substantially a diversity of angularity of the knives ....along the line of intersection of the cutting edges thereof with the curvature of the groove, ranging from 60 degrees, as the minimum, to 85 degrees, and whereas, the cutting edges of the cutter-knives along the line of intersection with the curvature of the groove, when adjusted according to the organic plan described in said invention, is, according to undisputed evidence, 45 degrees, which degrees are not attainable under the organic plan of said exhibited devices: and whereas, the practically attainable degrees of angularity under the organic plan of said exhibited devices are

other and materially and substantially different from the degrees practically attainable under the organic plan described in said invention, the difference between the angularity of the knives in said exhibited devices, and the angularity of the cutter-knives in
56 said invention cannot, in law, be said to be, simply, in "degree only," or regarded as being, simply, a question of "more or less."

Wherefore there is error.

9. There is error of fact and of law in this: The court, as appears from the court's opinion, found and decided that as it was not invention to simply adjust plane bits to a common carpenter's plane at an angle of 45 degrees, it was not invention to set the cutter-knives to the groove at the same angle in said invention; whereas, such finding and decision is contrary to law and the evidence; and whereas, it is shown by undisputed expert evidence that it was mechanically impracticable to adjust the cutting edges of the knives in said exhibited devices, produced by defendant, to the curvature of the groove so as to attain any degrees of angularity other than substantially a diversity of degrees ranging from 60 degrees, as the minimum, to 85 degrees; and that it required invention to devise an organic plan, such as is described in said invention, whereby it was rendered for the first time in the history of the art to which it belongs mechanically practicable and possible to adjust the cutting edges of the cutter-knives to the circular and curved surface of the groove so as to substantially produce at every point along the line of intersection of such cutting edge with such circular and curved surface, an angularity of 45 degrees; which, as the undisputed evidence shows, was substantially accomplished by said invention.

Wherefore there is error.

10. There is error of fact and of law in this: The court considered and sustained, against complainant's timely objection, the following defence urged by defendant upon the trial of said cause, to-wit: That the description of said invention in the recitals of said specification and claims, or some material por-
57 tion thereof, is not expressed in such full, clear, concise and exact terms as to enable any person skilled in the art appertaining thereto, or with which it is most nearly connected, to make, construct and use the same: Whereas, the court construed such recitals without any reference to any evidence, as also without any

reference to the drawings, as being insufficient in their description of said invention and of some material portions thereof to enable the public to make, construct, and use the same; and whereas, such defence was urged by defendant for the first time upon the trial of said cause, and not set up in defendant's answer to complainant's bill of complaint, nor set up in any plea, and with respect to which complainant had no notice according to statute or otherwise, nor any opportunity of producing evidence touching and relating to such defence; and whereas, the construction of such recitals, with respect to sufficiency of description of said invention, is in law a question of fact and of evidence and not simply a question of law to be determined by the court.

Wherefore there is error.

11. There is error of fact and of law in this: It is recited in the court's opinion as follows, to-wit:

"The proofs show that between the years 1862 and 1867 a cutter-head was put in use in the factory of B. F. Avery, Ky., which was constructed in the same manner as Caverly says he prefers to construct his, that is, of two disks, which having such curved or concave cut on its inner face, extending from beyond its diameter to its periphery, that when they are placed together the curves or concaves in the disks will form a groove in the head the size and shape of the article to be dressed, and this cutter-head is produced."

Whereas, such recitals of fact, by the court, are based upon
58 manifest oversight and mistake of the evidence; and whereas, the evidence shows that no such cutter-head was produced at the trial of said cause, nor at any time during the pendency of the same.

Wherefore there is error.

12. There is error of fact and of law in this: The court, against complainant's timely objection, admitted in evidence, as tending to negative patentable novelty of said invention, the A. A. Wilder letters patent aforementioned; whereas, by timely objection, complainant objected to said Wilder patent for the reason that defendant did not set forth in its answer or in any plea the name of such patentee, nor the date of such patent, nor when the same was granted, nor the name and residence of the inventor, nor give any

notice whatever, statutory notice or otherwise; and whereas, said Wilder patent, in the recitals of its specifications and claims, and in its drawings, in no manner and to no extent describe any material part of said invention, nor instruct any person skilled in the art appertaining thereto, or to which it is most nearly related, to make, construct or use said invention.

Wherefore there is error.

13. There is error of fact and of law in this: The court, as appears from the court's opinion, after eliminating from the recitals of the specification all reference to the drawings, and eliminating from any and all consideration such drawings, found and decided that said invention, and the recitals of the specifications thereof, do not describe any mechanical structure differing from that of said exhibited devices, or of said B. F. Avery machine, or that of said Wilder patent; and whereas, such finding and decision are contrary to law applicable to the construction of said specification and the recitals thereof, and relating to the drawings constituting, by statute, a part of such specifications.

Wherefore there is error.

59 14. There is error of fact and of law in this: The court found and decided that the operative work of said exhibited devices produced work of some value, and that the difference in such operative work of said devices, and the superior operative work of said invention was in degree only, whereas, such finding and decision are contrary to the evidence and to the law applicable to the facts proven thereby; and whereas, such finding and decision are based upon the construction of the recitals of said specification and claims, after eliminating therefrom all references therein to the drawings constituting a part thereof, and eliminating such drawings from any and all consideration as illustrating the description of said invention in such specification; and whereas, such specification and the recitals thereof, when construed with reference to said drawings, describe and show the mechanical construction of the component parts of said invention and of their combination and mode of operation to be materially and substantially other and different from that of said exhibited devices; and whereas, the evidence shows the operative work of such exhibited devices to be of no substantial value, and long since abandoned as operative devices; and whereas, the defendant, as shown by the evidence, after experimenting with said Grand de Tour device, one of said ex-

hibited devices, many years ago in its manufacturing establishment, then and there abandoned the same as worthless in its operative work and for years thereafter manufactured plow handle necks by hand, and did so until defendant constructed and used the machine complained of in complainant's bill of complaint. Assignment of Errors, filed Jan. 25, 1893.

60 *Wherefore there is error.*

HERSCHEL CAVERLY,
Administrator, &c.,
Complainant.

By D. B. NASH,
His Solicitor.

Endorsed, filed Jan. 25, 1893.

S. W. BURNHAM,
Clerk.
By E. P. SLOAN,
Ch. Dep.

66 Received for record January 12th, 1884, and recorded *in Liber Y30*, page 234, of Transfers of Patents.

In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed.

BENJ. BUTTERWORTH,
Commissioner.

[SEAL]

"B."

Exhibit "B."

Whereas, I, Amos K. Caverly, of Moline, County of Rock Island, State of Illinois, have invented a certain new and useful improvement in machines for rounding bent handles, for which I am about to make application for Letters Patent of the United States; and whereas, Sarah Caverly of Moline, County of Rock Island, State of Illinois, is desirous of acquiring an interest in said invention, and in the letters patent to be obtained therefor; now, therefore, to all whom it may concern, be it known that, for and in consideration of the sum of five dollars to me in hand paid, and other good and sufficient consideration, the receipt of which is hereby acknowledged, I, the said Amos K. Caverly, have sold, assigned and transferred, and by these presents do sell, assign and transfer unto the said Sarah Caverly, the full and exclusive right to the said invention, as fully set forth and described in the speci-

Exhibit "B."

fication prepared and executed by me preparatory to obtaining Letters Patent of the United States therefor; and I do hereby authorize and request the Commissioner of Patents to issue said letters patent to the said Sarah Caverly, as the assignee of my entire right, title, and interest in and to the same, for the sole use and behoof of the said Sarah Caverly and her legal representatives.

67 In testimony whereof, I have hereunto set my hand and affixed my seal this 12th day of November, A. D. 1883.

AMOS K. CAVERLY. (Seal.)

In presence of,

GEO. L. MCMASTER,
H. D. BLACKMORE.

[Endorsed]: C/12. 214,196. Entered Section 24.

Patent Office, Jan. 12, 1884. U. S. A.

U. Patent Nov. 23, 1883. S. Office.

25038 Patent Office Div. D. 1883.

Fee, $1, Pd.

68 "C."

LETTERS OF ADMINISTRATION.

STATE OF ILLINOIS, } ss.
ROCK ISLAND COUNTY. }

The People of the State of Illinois to all to whom these Presents shall come, Greeting:

Exhibit "C."

Know ye, that, whereas, Sarah Caverly, of the County of Rock Island, and State of Illinois, died intestate, as it is said, on or about the twenty-fourth day of March, A. D. 1890, having at the time of her decease, personal property in this State, which

may be lost, destroyed or diminished in value, not taken of the same.

To the end, therefore, that the said prope lected and preserved for those who shall appea right or interest therein, we do hereby appoint H of the County of Rock Island and State of Illinc of all and singular the goods and chattels, rig which were of the said Sarah Caverly at the tim with full power and authority to secure and colle... ...e said prop- erty and debts, wheresoever the same may be found in this State, and in general to do and perform all other acts which now are, or hereafter may be required of him by law.

Exhibit "I

Witness, Richard A. Donaldson, Clerk of the County Court, in and for the said County of Rock Island, at his office in Rock Island, this 12th day of June, A. D. 1890, and the seal of said court hereunto affixed.

R. A. DONALDSON,
Clerk of County Court.

[SEAL]

69 CLERK'S CERTIFICATE OF COPY.

STATE OF ILLINOIS,
COUNTY OF ROCK ISLAND. } ss.

I, Hjalman Kahler, clerk of the county court, in and for said county, in the State aforesaid, do hereby certify the foregoing to be a true and complete copy of the letters of administration to Herschel Caverly as administrator of the estate of Sarah Caverly, deceased, as the same appear of record in my office.

In testimony whereof, I have hereunto set my hand and affixed the seal of said court at my office in Rock Island, this 4th day of December, A. D. 1890.

HJALMAR KAHLER,
Clerk.

[SEAL]

[Endorsed]:
Copy.—Letters of Administration, Rock Island Co. Court. Estate of Sarah Caverly, deceased. Herschel Caverly, Administrator.

Exhibit "B."

fication prepared and executed by me preparatory to obtaining Letters Patent of the United States therefor; and I do hereby authorize and request the Commissioner of Patents to issue said letters patent to the said Sarah Caverly, as the assignee of my entire right, title, and interest in and to the same, for the sole use and behoof of the said Sarah Caverly and her legal representatives.

67 In testimony whereof, I have hereunto set my hand and affixed my seal this 12th day of November, A. D. 1883.

AMOS K. CAVERLY, (Seal.)

In presence of,

GEO. L. MCMASTER,
H. D. BLACKMORE.

[Endorsed]: C/12. 214,196. Entered Section 24.

Patent Office, Jan. 12, 1884. U. S. A.

Patent U. Nov. 23, 1883. S. Office.

25038 Patent Office Div. D. 1883.

Fee, $1, Pd.

68 "C."

LETTERS OF ADMINISTRATION.

STATE OF ILLINOIS, ROCK ISLAND COUNTY. } ss.

The People of the State of Illinois to all to whom these Presents shall come, Greeting:

Exhibit "C."

Know ye, that, whereas, Sarah Caverly, of the County of Rock Island, and State of Illinois, died intestate, as it is said, on or about the twenty-fourth day of March, A. D. 1890, having at the time of her decease, personal property in this State, which

may be lost, destroyed or diminished in value, if speedy care be not taken of the same.

To the end, therefore, that the said property may be collected and preserved for those who shall appear to have a legal right or interest therein, we do hereby appoint Herschel Caverly, of the County of Rock Island and State of Illinois, administrator of all and singular the goods and chattels, rights and credits, which were of the said Sarah Caverly at the time of her decease; with full power and authority to secure and collect the said property and debts, wheresoever the same may be found in this State, and in general to do and perform all other acts which now are, or hereafter may be required of him by law.

Witness, Richard A. Donaldson, Clerk of the County Court, in and for the said County of Rock Island, at his office in Rock Island, this 12th day of June, A. D. 1890, and the seal of said court hereunto affixed.

R. A. DONALDSON,
Clerk of County Court.

[SEAL]

69 CLERK'S CERTIFICATE OF COPY.

STATE OF ILLINOIS, }
COUNTY OF ROCK ISLAND. } ss.

I, Hjalman Kahler, clerk of the county court, in and for said county, in the State aforesaid, do hereby certify the foregoing to be a true and complete copy of the letters of administration to Herschel Caverly as administrator of the estate of Sarah Caverly, deceased, as the same appear of record in my office.

In testimony whereof, I have hereunto set my hand and affixed the seal of said court at my office in Rock Island, this 4th day of December, A. D. 1890.

HJALMAR KAHLER,
Clerk.

[SEAL]

[Endorsed]:
Copy.—Letters of Administration, Rock Island Co. Court. Estate of Sarah Caverly, deceased. Herschel Caverly, Administrator.

Filed this 12th day of June, 1890, and recorded in Book "D" Page 169.

R. A. DONALDSON,
Clerk.

Copy.

70 "D."

To Deere & Company—

DEAR SIRS:

I respectfully call your attention to the following facts, that, on the 5th day of August, 1884, letters patent were issued to Sarah Caverly, as assignee of the invention of Amos K. Caverly, of Moline, Illinois, but now deceased, said invention being an "improvement" in machines for rounding bent handles, and said letters patent being numbered 303,116, that said Sarah Caverly died on the 24th day of March, 1890, and that Herschel Caverly, of Moline, Illinois, has been appointed administrator of her estate; that the administrator now claims that your company has been and is still using a machine, constructed in all substantial respects upon the identical principles covered by said letters patent, and that your company has been using said machine at all times since about the first of January, 1885, and that such use constitutes an infringement of the invention covered by said letters patent.

In view, therefore, of the foregoing state of facts, as said administrator understands them, he deems it his duty to call upon you, and to demand of your company to forthwith desist from the further use of said machine, and the further infringement of said invention, and to further demand of you an accounting of the damages, which accrued to said Sarah Caverly, up to the 24th day of March, 1890, and the damages which have accrued to her estate since her death; all of which, and of the foregoing, demand is hereby made of your company to do and perform.

D. B. NASH,
Attorney for Administrator.

[Endorsed]: Notice.

74 COMPLAINANT'S TESTIMONY.

Deposition of Herschel Caverly.

HERSCHEL CAVERLY, aged 34 years, of Moline, being produced, sworn and examined, on the part of the plaintiff, deposeth and swears as follows, to-wit:

Int. 1. What is your name?

Ans. Herschel Caverly.

2nd Q. What is your age, place of residence and occupation?

Ans. Thirty-four years of age. Reside at Moline, Ill. Occupation, run an express wagon.

3rd. How long have you resided at Moline, Ill.?

Ans. Twenty-six years.

4th interrogatory: State whether or not you are complainant in this cause wherein Herschel Caverly, administrator of the estate of Sarah Caverly, deceased, against Deere & Company?

Ans. I am.

5th. Complainant will cause to be attached to this deposition a certified copy of the letters of administration granted to him of the estate of said Sarah Caverly, deceased.

6th. I show you now a document purporting to be the original letters patent issued by the United States out of the Patent Office to Sarah Caverly, as assignee of the inventor, Amos K. Caverly, being numbered 303,116, and bearing date the 5th day of August, A. D. 1884. I now call your attention to the names Amos K. Caverly and Sarah Caverly. The former name, Amos K. Caverly, being mentioned therein as the inventor, and the latter name, Sarah Caverly, being mentioned therein as assignee of the invention purporting to be covered by said letters patent. You will now please state what relation, if any, were you to said parties, if any?

Ans. I am a son.

7th interrogatory: State whether or not either of said parties, your father and mother, is still living, and if not, please state when your father died, and also when your mother died?

Ans. They are not living. My father died in July, A. D.
75 1886, and my mother died in March, A. D. 1890.

8th interrogatory: I will call your attention to a certain other document purporting to be the original assignment of the said invention by the said Amos K. Caverly to Sarah Caverly, bearing date November 12th, 1883, and purporting to be received for record at the United States Patent Office on January 12, 1884, which

assignment the notary will please mark "Exhibit B," attached to the answer of witness. You will now state whether or not you came into possession of said document as administrator of the estate of Sarah Caverly, deceased, as belonging to her estate?

Ans. I did.

(Signed) HERSCHEL CAVERLY.

By mutual consent of the parties, complainant and defendant, that a printed Patent Office copy is attached to the deposition of witness as an exhibit, and as a substitute for the original letters patent shown to witness. The notary will please mark the same Exhibit A.

Deposition of Ralph Caverly.

76 Witness RALPH CAVERLY, aged 32 years, of Davenport, Iowa, being produced, sworn and examined, on the part of the complainant, deposeth as follows:

1st. What is your name?

Ans. Ralph Caverly.

2nd interrogatory: What is your age?

Ans. Thirty-two.

3rd interrogatory: Where is your place of residence?

Ans. I consider my place of residence at present at Davenport, Iowa. I am now staying at Rock Island, Illinois.

4 interrogatory: I show you an instrument of writing, purporting to be a notice by Herschel Caverly, as administrator of Sarah Caverly, deceased, to Deere & Company; you will now state whether or not you served the original paper, of which this paper now showing you purported to be a copy, upon Deere & Company, and state upon what particular person you served the same?

Ans. I did serve it upon said Deere & Company by service upon Charles H. Deere. (It is admitted by counsel for defendant that Charles H. Deere is an officer of the Deere & Co. corporation.)

5th. Please fix the date, as near as you can, of said service?

Ans. On the eighth day of July, A. D. 1890, or thereabout, prior to the commencement of this suit.

XX Cross-Examination of Ralph Caverly, by Defendant's Counsel, A. H. Adams.

Question 6th interrogatory: Did you make a comparison of

the paper just shown you, with the original no
Deere?

Ans. I did.

RALPH J. C

The notary will please mark said paper
tached to the deposition of witness.

J. W. BARTLETT, aged 61 years, or ther
being produced, sworn and examined on the p
deposeth and swears as follows:

77 Deposition of witness, J. W. Bartelett, produced and sworn:

1st interrogatory: What is your name, age, occupation and place of residence?

Ans. My name is J. W. Bartlett; occupation, master mechanic; residence, Moline, Ill. My age sixty years or sixty-one last August.

2nd interrogatory: How long have you resided at Moline?

Ans. About sixteen or seventeen years since I came here.

3rd interrogatory: State whether or not during that time your business has been in connection with practical mechanics?

Ans. Yes, it has.

4th interrogatory: State whether or not you have acquired a knowledge of theoretical and practical mechanics?

Ans. I have.

5. I will now show you a printed patent office copy of the specifications and drawings of letters patent set forth in bill of complaint in this cause, and numbered 303,116. I will now call your attention to the drawings attached to the specifications annexed to said letters patent. Please first carefully examine said said drawing as shown respectively in figures one, two, three and four, and after having examined the same, state with as much particularity as may occur to you, the component parts with which the machine or apparatus illustrated by the drawings, appear to be constructed?

Ans. This machine is composed of two separate disks with inner sides turned out on a curve near the outer edge, to form the handle of plows in a suitable round shape, for the plow handle, and those disks are provided with an inclined slot projecting through the disk, a bit or cutter fitted thereto, rigidly adjustable, with a set screw or bolt with either flat or concave bits. With the outer side

assignment the notary will please mark "Exhibit B," attached to the answer of witness. You will now state whether or not you came into possession of said document as administrator of the estate of Sarah Caverly, deceased, as belonging to her estate?

Ans. I did.

(Signed) HERSCHEL CAVERLY.

By mutual consent of the parties, complainant and defendant, that a printed Patent Office copy is attached to the deposition of witness as an exhibit, and as a substitute for the original letters patent shown to witness. The notary will please mark the same Exhibit A.

Deposition of Ralph Caverly.

76 Witness RALPH CAVERLY, aged 32 years, of Davenport, Iowa, being produced, sworn and examined, on the part of the complainant, deposeth as follows:

1st. What is your name?

Ans. Ralph Caverly.

2nd interrogatory: What is your age?

Ans. Thirty-two.

3rd interrogatory: Where is your place of residence?

Ans. I consider my place of residence at present at Davenport, Iowa. I am now staying at Rock Island, Illinois.

4 interrogatory: I show you an instrument of writing, purporting to be a notice by Herschel Caverly, as administrator of Sarah Caverly, deceased, to Deere & Company; you will now state whether or not you served the original paper, of which this paper now showing you purported to be a copy, upon Deere & Company, and state upon what particular person you served the same?

Ans. I did serve it upon said Deere & Company by service upon Charles H. Deere. (It is admitted by counsel for defendant that Charles H. Deere is an officer of the Deere & Co. corporation.)

5th. Please fix the date, as near as you can, of said service?

Ans. On the eighth day of July, A. D. 1890, or thereabout, prior to the commencement of this suit.

XX Cross-Examination of Ralph Caverly, by Defendant's Counsel, A. H. Adams.

Question 6th interrogatory: Did you make a comparison of

the paper just shown you, with the original notice served upon Mr. Deere?

Ans. I did.

RALPH J. CAVERLY. (Signed.)

The notary will please mark said paper as "Exhibit D" attached to the deposition of witness.

J. W. BARTLETT, aged 61 years, or thereabouts, of Moline, being produced, sworn and examined on the part of the plaintiff, deposeth and swears as follows:

77 Deposition of witness, J. W. Bartelett, produced and sworn:

1st interrogatory: What is your name, age, occupation and place of residence?

Ans. My name is J. W. Bartlett; occupation, master mechanic; residence, Moline, Ill. My age sixty years or sixty-one last August.

2nd interrogatory: How long have you resided at Moline?

Ans. About sixteen or seventeen years since I came here.

3rd interrogatory: State whether or not during that time your business has been in connection with practical mechanics?

Ans. Yes, it has.

4th interrogatory: State whether or not you have acquired a knowledge of theoretical and practical mechanics?

Ans. I have.

5. I will now show you a printed patent office copy of the specifications and drawings of letters patent set forth in bill of complaint in this cause, and numbered 303,116. I will now call your attention to the drawings attached to the specifications annexed to said letters patent. Please first carefully examine said said drawing as shown respectively in figures one, two, three and four, and after having examined the same, state with as much particularity as may occur to you, the component parts with which the machine or apparatus illustrated by the drawings, appear to be constructed?

Ans. This machine is composed of two separate disks with inner sides turned out on a curve near the outer edge, to form the handle of plows in a suitable round shape, for the plow handle, and those disks are provided with an inclined slot projecting through the disk, a bit or cutter fitted thereto, rigidly adjustable, with a set screw or bolt with either flat or concave bits. With the outer side

of the disks cut away to form a throat at the throat at the
78 cutting edge of the bit, to allow the shavings to pass through freely. Those two disks are put onto a shaft and are bolted with curved faces together and made rigid to the shaft with set screws or key. The shaft is provided with a pulley on the end and supported on a frame by metal boxes ready for operation.

6th interrogatory: Then do I rightly understand you to mean that the component parts of said machine or apparatus illustrated, or shown forth by said drawings, consist of two disks bolted together in form cylindrical having a groove between the two disks possessing curvatures on either side thereof of the form of the material desired to be dressed, and possessing on the sides, external sides of each disk, a recess or declivity expanded at the external edges thereof, and diminishing in width or diameter as the same approaches the inner curved surface of the disks, and terminating in an aperture of crescent-like shape opening into the inner curved sides of the disks, and also said recess containing an inclined plane or bed in which to adjust cutter knives, and said bed being or constituting an inclined plane and approaching the inner curved surface of the disks at an angle on which bed cutter knives are adjusted, and fixed with set screws whereby the cutter knives and the cutting edge thereof approach the inner curve surface of the disk at an angle acute in form, and said recess at a place opposite of said cutter-knife bed, while diminishing toward the aperture, assumes a curved-like form, and possessing the ordinary attachments for the application of motive power.

6½. Do I rightly understand that your answer to the previous interrogatory comprehends substantially the component parts of the machine or apparatus illustrated by said drawings?

(Defendant's counsel objects to the question as leading and as assuming more than is warranted by the last answer. And for the further reason that in the last answer the witness stated fully his understanding of what constituted the
79 component parts of the machine shown in the patent in suit.)

Answer by J. W. Bartlett: Yes sir.

7th interrogatory: State whether or not you mean that your answer to interrogatory No. (6) six contains, or was intended by you to contain, in a substantial manner the several component parts of the machine illustrated by the drawings which is recited in detail in the question number six.

(Defendant's counsel renews the former objection and

also objects to the question for the reason that it has been answered by the last answer.)

Answer: Yes sir; I intended to make it just as recited in number six question, as above.

8 interrogatory: Please state of how many disks, if more than one, the machine illustrated in the said drawings, is composed?

Ans. There are two disks in the illustrations of the machine.

10th interrogatory: Of what general form are said disks, whether cylindrical or otherwise, according to your opinion?

Ans. The disks shown in the illustration here are of straight surface on the outside and the inner surface are grooved near the outer edge, forming a circle when the two are bolted together.

11th interrogatory: What, then, is the general form of the two disks when bolted together, as you have stated, whether cylindrical or otherwise. State according to your opinion and further state, as nearly as you can, in what manner the groove you referred to that are shown in figure one of the drawings is created?

Ans. It is cylindrical in form with a groove in the center.

12 interrogatory: You will please state how, in your opinion,
80 said groove is formed in the practical construction of the machine?

Ans. The groove is formed in the pattern in each half, that is the way I have done it, but it can be done in another way. They can be moulded with both surfaces flat and the grooves turned after they are bolted together.

13 interrogatory: When that part of the machine commonly called a cutter-head is constructed of two pieces, or two disks, how are they fastened together according to the drawings, with bolts or set screws. I presume, by the drawings, bolts, as it shows the nut.

14th interrogatory: I will call your attention now to figure two of the said drawing. State what portion of said machine this figure two represents, side or front view or otherwise?

Ans. It represents the outside. A side view of the outside of the machine.

15th interrogatory: State what, if any, openings or ditches flaring at the top on the outer face and diminishing as width as the same extends inward toward the inner plane of the curves of the disks?

Ans. It is cut away on the outer sides forming an incline to adjust the bit or cutter knife, and on the opposite to form a throat

or opening for the chips to pass through terminating in a groove on the inner side of the disk to receive the cutting edge of the bit.

16 interrogatory: State what is the general form of said recesses, whether or not the sides thereof descend on inclined planes with more or less curvature, until reaching the openings into the inner surface of the disk, or otherwise. State the character as to shape of such recesses as near as you are able?

Ans. The openings in the head of the machine are set on an incline to suit the shape of the bit either round or flat on one side of the opening, and the other side is cut away, forming a throat
81 on an incline to the outer surface; that is for the shavings to pass through.

17 interrogatory: State what is the general form of the openings of the recesses as the same passes into the plane of the inner curvature of the disks, whether crescent-like or otherwise, in your opinion?

Ans. It is a rather crescent-like form, in my opinion, as it appears a curved opening, as it appears here, it would show a curved opening with a flat cutter bit or cutter knife.

18 interrogatory: What, then, is the shape of the openings as it passes into the inner curve plane of the curve portion of the disks?

Ans. It is a curve shape, just the shape of the curve of the disk, the edge of the knife has to have the precise curve as the curve of the disk in order to shape the wood.

19 interrogatory: State whether or not the angle of said opening at its outer extremity is or is not less acute than the opposite extremity of said opening. State according to your opinion.

Ans. I don't think it is as shown there, it is about the same.

20 interrogatory: The answers which you have given to the last two questions have had relation to figure three, have they not?

Ans. Yes sir.

21 int. Let me now call your attention to figure two and to the opening designated by *b* two. State what, in your opinion, is the general form of the opening, the same being the point where the recess above mentioned passes into *t*. the plane of the curves position of said disks.

(Objected to, for the reason that the same question has been asked and answered.)

82 Ans. Well, my opinion it is a curved shape, that opening is rather more on one side than the other of that opening, the upper curve being shorter than the lower.

22 interrogatory: Your attention is further called to figure two. State what form the bed of the cutter knives as they appear in the recesses of said figure.

Ans. The one side of the recess forms the bed of the cutter knives.

23 interrogatory: For what purpose, in your opinion, is the opposite side said recess?

Ans. To form a throat to admit the shavings to pass through.

24 interrogatory: How many recesses in said figure, as they appear in the said drawings?

Ans. Three.

25 interrogatory: How many knives does the drawings indicate as desirable to be used in the construction of the machine?

Ans. Six.

26 interrogatory: Do I understand you to mean there are three in each disk that the drawing represents that three knives are to be adjusted to each side of the disks?

Ans. Yes sir.

27 interrogatory: State whether or not there is a place or opening for the shaft to pass through the disks in the construction of the machine?

Ans. Yes sir, there is.

28 interrogatory: State how the several knives are secured on their beds?

Ans. Secured by a set screw as shown here in the drawing.

29 interrogatory: State in what direction said cutter knives approaches the openings of the recess into the plane of the curved portion of the disk, whether on an inclined plane or at an angle or otherwise? State according to your opinion.

Ans. Well, my opinion is, it approaches the opening on an angle of about 45 degrees.

30 interrogatory: You may state what, in your opinion, is the
83 general direction of the cutter knives as they approach the openings and pass through the openings into the plane of the curve portion of the disks, whether on an inclined plane or at an angle or otherwise? Please state, according to your opinion, without fixing any particular inclination or angle or any dimensions of the parts or any part of the machine?

Ans. The bit is set as near on a level with the inner surface of the curve of the surface as you can get it, and on a general incline of all cutter knives; also it approaches the curved opening on an inclined plane or angle.

31 interrogatory: You may state what, in your opinion, is the general direction of the cutter knives, meaning by cutter knives the whole body of the implement, as they approach the openings and pass through the openings into the plane of the curved portion of the disk, whether on an inclined plane at an angle or otherwise. Please state according to your opinion, without fixing any particular inclination or degree of angle or any dimensions of any of the parts of the machine?

Ans. As it is shown here, it approaches the opening on an incline and also on an angle.

32 interrogatory: State of what material the said machine is composed according to the illustrations or drawings, the whole machine complete?

Ans. The head or disks is made from metal, cast iron, wrought iron or steel shaft and cast steel knives, cast iron bearings for the shaft, wooden frame to support the machine and wood or iron pully, the upright "g" and cross bar "f" are made of wood.

32 interrogatory: I will call your attention to figures 4 and five in said drawing and state the particular form of each cutter knife respectively referred to, including the cutting edges thereof?

84 Ans. Figure four shows a concave knife with a cutting edge and slotted near the center for the set screw to pass through; the corners of the cutting edge appears to be the same length with the circular cutting edge. Figure five represents the flat knife with a straight surface, and the cutting edge is on a circle, with one corner longer than the other. The flat knife is also slotted for a set screw.

34 interrogatory: You may state in what manner the cutting edges of the knives are presented to the plane of the curved portions of the disk, when such knives are adjusted to the beds in the manner illustrated by said drawings, whether diagonally or at an angle, or otherwise; state according to your opinion.

Ans. As shown in the drawings, they are setting in the general incline of all cutter bits.

35 interrogatory: What do you mean by all cutter bits?

Ans. Cutter bits are bits that they use in rotary planes or cutter-heads for planing or shaping timbers.

36 interrogatory: Do you mean by your preceding answer that all cutter bits or cutter knives used in any and all rotary cutters and machines for cutting and dressing wood are always fixed at an angle containing a precise number of degrees, without any variation whatever in all machines, or do you mean to be understood as saying and meaning that all cutter knives in rotary cutters

for dressing various styles of dressed wood work are fixed and adjusted so as to meet the plane of the material being dressed on some angle or inclination, some of which are more inclined and at a greater angle and some of which are fixed at a less inclination and at a less acute angle, according to the work to be accomplished and the object to be obtained, and according as the manufacturer at the time of the construction of the machine chooses to construct such angle? Please state according to your best opinion.

Ans. What I have reference to, there is in setting the bits in any cutter-head for any particular purpose, they have to be set in relation to the shape of the head and the cutting surface as near as possible, without any particular fixed angle or incline.

37 interrogatory: I will ask you whether or not you have ever seen and examined a machine or apparatus located in defendant's machine shops at Moline, which machine or apparatus is apparently designed by its construction to dress crooked portions of plow handles, cultivator handles and implements of like character, and if so, state when you saw the same?

Ans. I have. I saw it this afternoon of December 1st, A. D. 1890.

38 interrogatory: State whether or not, at the time you so saw and examined said machine, you also further saw said machine or apparatus being used in dressing plow handles by said defendants?

Answer: Yes sir.

39 interrogatory: I would call your attention to that portion of said machine constituting the disks, if more than one, and state as near as you are able how said disks are constructed, and of what material they are composed?

Answer: Well, the disk is composed of metal, and on the outer surfaces there are lugs raised up on an incline, with a flange on each side of the incline to receive the bit or knife, and the opening at the lower end of the incline passes through on a curved surface and on the inside portion of the surface of the disk is straight or flat, and near the outer edge is curved out, forming a half circle or nearly so, so that when the two disks are placed together the curves form the shape of the handles or circle; the outer side of the opening is curved out, forming a throat for the shavings to pass through, and there were bits or knives fitted on the inclines between the flanges, provided with caps and secured by set screws, with cutting edge fitted or shaped to the circle of the disk on the inner side.

40 interrogatory: Please state whether or not, in your opinion, the various component parts of the machine illustrated in the

drawing attached to the specifications and referred to therein, said specifications and drawings being the same as referred to in your foregoing examination (except in the last question and answer) might be varied in their several dimensions and yet preserve the material and substantial combination and the material and substantial principles of the machine and its mode of operation, and its practical results as a practical operating machine?

Answer: The component parts may be varied in size and shape and yet preserve the substantial and material combinations and the material and substantial principles of the machine and its mode of operation, and its practical results as an operating machine.

41 interrogatory: Suppose a machine should be constructed varying to some extent from the drawings annexed to the specifications of said letters patent with respect to the particular dimensions of its several parts, as for example: Suppose the rim of the disks on each side of the groove should be constructed of such diminished thickness as to assume a flange-like appearance, and thereby cause the cutter-knives bed to appear resting upon a projecting prominences or lugs attached to the extended sides of the flanges and near their periphery, and having their three external sides consisting of inclined planes and the sides which constitute the beds of the cutter knives, terminating in an opening in the inner plane of the curved portion of the disk, and further suppose that no material or substantial change is made in the direction and approach of the cutter knives to the inner plane of the curved portion of the disks. Now please state whether or not, in your opinion, such a variance in the construction of such machine would constitute any material or substantial variance in the mechanical or operating principles of the machine?

87

Answer: No, I don't think it does.

42 interrogatory: I will ask you to state whether or not, in your examination of the machine which you have above stated that you saw and saw used in defendant's machine shops, on the first day of December, 1890, is constructed with disks of such diminished thickness as to assume a flanged-like appearance and thereby cause the cutter knife beds to appear resting on projecting prominences or lugs attached to the external sides of the flanges and near their periphery and having three external sides consisting substantially of inclined planes and the sides which constitute the beds of the cutter knives terminating in an opening of the inner plane of the curved portion of the disk.

(Defendant's counsel objects to the question as leading.)

Answer: Yes sir, it was.

43 interrogatory: State whether or not, in your opinion, and in view of your examination of the drawings annexed to the said letters patent, and in view of your said examination of the machine which you saw located in defendant's shops, there is any material or substantial difference in the mechanical principles and mode of operation between the grooves of the disks and the recesses on the external sides of the disk, and the adjustment of the knives therein, contained in the machine illustrated by the said drawings annexed to the said letters patent, and the disks of the machine you examined in the defendant's shops and the grooves between said disks and in the recesses in each side of the said disks and the adjustment of the knives upon the prominences of the flanges
88 affixed thereon, and their direction and approach to and through the openings into the inner plane of the curved portions of said disk.

Ans. I should say the operating principles of the machine would be about the same. I should think there would be no substantial or material difference in the operation and principles of the machine.

44 interrogatory: Have you, in your business, been accus-
111 tomed to compare machines actually constructed with the drawings and written or printed descriptions of machines?

Ans. Yes sir.

45 interrogatory: State whether or not you have carefully examined the specifications and claim and drawings annexed to said letters patent.

Ans. I have looked them over and have examined the drawings carefully.

46 interrogatory: You may state whether or not, in your opinion, in view of your examination of said specifications, claim and drawings relating to the machine therein described and in view of your examination of defendant's machine which you saw at its shop, there is any material or substantial difference between the former machine and the latter machine with respect to their mechanical principles and modes of operation embodied in said machines?

Ans. No sir, I don't think there is.

Cross-Examination by Mr. Adams.

X. 47 cross-interrogatory: From your examination of the patent in suit, is it your opinion that that patent covers any prin-

ciple or mode of operation *per se*, or is it limited by the claims thereof to certain combinations of parts therein mentioned?

(Complainant objects to the foregoing question for the
112 reason it calls upon the witness to decide a question of law which it is the province of the court to do.)

Ans. That is a question to be decided by the court.

X. 48 cross-interrogatory: In your opinion, would a cutter-head, having the knives thereof arranged in pairs, that is, the knifes on one side opposite to those on the other, be the equivalent of the cutter-head constructed as shown in the patent?

(Complainant objects to the question for it answers in advance that the specifications and claim and drawings annexed to said patent does not come in the description of the machine having knives constructed alternately in the grooves as well as knives in said grooves are directly opposite to each other.)

Ans. Well, I think it would.

X. 49 cross-interrogatory: Would a cutter-head having the knives thereof set at a different inclination and angle, but at an inclination and angle that would permit of their performing the work in a proper manner, be the equivalent of a cutter-head having the knives arranged as shown in the patent?

(Complainants objects to the question for the reason that the question assumes in advance, that the specifications in describing the adjustment of the knives fixes a definite and fixed degree of angle or inclination which it does not so do, but permitting the knives to be set in any degree which will do proper work, and also for the reason the question is not proper cross-examination.)

Ans. The principle would be the same. It would not change the principle of the cutter-head. The angles could be changed a little.

X. 50 cross-interrogatory: If a cutter-head like that shown in the drawings, but having that portion shown in the recess little "b 3" which is opposite to the bolt holes little "e 3" changed in size or shape, but not so much but that the chips or shavings could still escape freely, would such cutter-head, in your opinion, be the equivalent of that shown in the patent?

113 (Complainants objects as not being proper cross-examination.)

Ans. If it is not reduced so much as to obstruct the chips it would be the equivalent.

X 51 cross-interrogatory: In your opinion, is it absolutely necessary that the openings small "b 2" be crescent-shaped, or could they be made of other shape, so long as they permitted the cutting edge of the knives of bits to project sufficiently and properly into the peripheral groove?

(Complainants object, for reasons given above.)

Ans. These openings can't be made in any other shape and use the same cutter knives passing through into a curved surface, as they are a flat surface will come through on a curve, same as they are.

X 52 cross-interrogatory: Please state whether, in your opinion, a machine for for cutting the bent portions of plow handles, which employ a cutter-head like that shown in the Caverly patent, would be a practical machine, unless some device were used on which to support the handle being operated upon, so as to regulate the depth to which the knives should cut?

Ans. Yes sir, it is.

X 53 cross-interrogatory: Can you state about how many revolutions to the minute such a cutter-head is made to revolve while in use?

Ans. Well, I don't remember the speed that they run those cutter-heads, but as near as I can remember, they run between 2,500 and 3,000 revolutions per minute. I don't remember exactly.

X 54 cross-interrogatory: Assuming that such a cutter-head was run at the rate of 2,500 revolutions a minute, and that it
114 was provided with three knives or bits on each side, as shown in the patent, a handle that was placed in the groove of such head would be cut on each side at the rate of 7,500 times a minute, would it not?

Ans. I suppose it would, and that would not be very many cuts.

X 55 cross-interrogatory: At that rate of cutting, if the operator was at all careless or inattentive to his work, and the handle was allowed to remain in the groove but a very short time after it had been cut all that was necessary, it would be ruined by being cut altogether too deep, would it not?

Ans. It would not injure the handle.

X 56 cross-interrogatory: Please explain why not?

Ans. The reason why is, there is a stop or space between the cutting edge of the knives on the side which prevents the knives from cutting but a certain depth.

X 57 cross-interrogatory: Will you please state whether there is any statement in the specification of the Caverly patent to the effect that any space is to be left between such knives?

Ans. I don't remember, in my looking them over, of its mentioning that.

X 58 cross-interrogatory: Is it not set forth in the specification, that with a machine employing a cutter-head like that shown in the patent a dressed handle will be produced "sufficiently smooth to go directly to the paint shop without further smoothing or finishing"?

115 Ans. Yes sir.

X 59 cross-interrogatory: Do the drawings of the Caverly patent indicate in any manner that there is any space between the knives of that cutter-head, at the bottom of the groove?

Ans. Nothing is shown in the drawings.

X 60 cross-interrogatory: But, on the contrary, the knives shown in figure one extend fully to the center line of the groove in the cutter-head, do they not?

Ans. That is as it is shown in the drawing.

X 61 cross-interrogatory: I will now repeat, in substance, my former interrogatory, namely, if a cutter-head such as is *shown in the patent* were employed in cutting away the bent parts of handles, would it not be very difficult to properly regulate the depth of cut, unless a support of some kind were employed on which to rest the handles while being operated upon?

Ans. Yes sir, I think it would.

X 62 cross-interrogatory: Then with such a cutter-head the machine would not be practical without some such rest being employed, would it?

Ans. No sir, I don't think it would.

X 63 cross-interrogatory: The bar lettered large "F" in the Caverly patent is such a rest as I have referred to, is it not?

Ans. Yes sir.

X 64 cross-interrogatory: Even by the use of that rest large "F" a handle might be easily spoiled if tilted even slightly too much, might it not?

Ans. Yes sir.

116 X 66 cross-interrogatory: You may state whether you have seen employed at some place, other than at defendant's factory,

any machine or machines of the same general c
same purpose, and if so, when and where have

Ans. I have saw machines at the Moline Plow Company shops for the same purpose. I seen them there for eight years, that is, one of them, and the other two I made myself.

X 67 cross-interrogatory: Are the three machines that you refer to substantially alike?

Ans. No sir.

Do they all three employ rotating cutter-heads?

Ans. Yes sir.

X 68 cross-interrogatory: You stated that two of them were made by yourself. You may state when you built those machines.

Ans. It was in the latter part of 1885 or fore part of 1886. I have nothing to refer to.

X 69 cross-interrogatory: Are the cutter-heads on the machines that you made substantially like the cutter-heads of the patent, in that the knives extend to the center of the peripheral groove, or were such cutter-heads constructed with one opening between the knives as in defendant's machine that you testified about?

Ans. They were constructed with an opening between the knives to stop the handle from being cut too deep.

X 70 cross-interrogatory: Previous to constructing said two 117 machines had you seen or had you in your possession, any old cutter-head which aided you in any particular in designing and construing said two machines?

Ans. They had an old cutter-head there that they were using when I went there, which was about 1881. That was not a practical machine, but it aided me some in getting up these said machines.

X 71 cross-interrogatory: Please state how long said two machines so designed and constructed by you were in use?

Ans. The first one I built we run that, I think, about two years and it didn't suit me as well as I would like it to, and then I made a new set of patterns and got up a new set of cutter-heads, larger in their diameter, and we run those machines as long as I was there with the company to the time I left, which was about a year ago.

X 72 cross-interrogatory: Please state whether or not you have any interest, pecuniary or otherwise, in the result of this suit?

Ans. I have not.

Re-Direct Examination by Mr. Nash, of Witness J. W. Bartlett.

R. D. 73d interrogatory: I will call your attention to the

following portions of the recitals of the specification annexed to said letters patent, "the number and mode of adjustment of the cutter knives used may be varied as to the size of the head or the character of the wood to be shaped shall render expedient, I have found for general purposes six knives, three on each half of the head, the knives thereof on one side alternating in their appearance on the concave those on the other, is a very satisfactory and efficient arrangement.

The knives are adjusted to the disks of the cutter-head on
118 sharply-inclined beds formed in one end of the openings in the disk, thus presenting the cutting edges of the knives diagonally to the plane of the curved portion of the disks, as shown in figure three, similar to the manner in which plane bits are secured to the plane from the incline on the other side forming a channel for the discharge of chips made by the cutters, and are adjustable back and forth within the disks by set screws working in slots in the knives, by this longitudinal adjustment the depth of the cutting action of the knives may be regulated. The openings where the cutter enters the curve on the disks being narrow, the metal surrounding such openings resists the progress of the cutters beyond the distance to which the cutters extends beyond the curve, and by increasing or diminishing this distance the cut may be deeper or shallower and the character of the work vary, when the knives are projected to a considerable distance into the curve the chips are larger and consequently not so smooth as when the distance which they extend beyond the curve is made shorter, and when they are but slightly projected, the chips are very fine and the work very smooth and nice. These adjustments may be made to suit the character of the wood being shaped or the character of the work required. But with proper care, with all qualities of wood, the arrangement of the knives may be made so that the handles shaped will be sufficiently smooth to go directly to the paint shop without further smoothing." Now, if a proper legal construction of these recitals of the foregoing recitals of said patent in connection with all the rest of the specification, drawings, and claim direct and permit the person operating the machine to adjust the cutter knives longitudinally so as to cause the cutter knives on each side of the disks to be set forward through the openings or the recesses prepared for the same, so that the knives, according to the discretion of the operator, may be caused to approach each other, the one knife on the outside of the disk, and the other knife
119 on the other side of the disk to such a particular extent, as, for example, that the cutting portion of the cutter knife on one portion of the disk and the lower corner of such knife to describe a

circle in its revolution around the bottom of t
leave the thirty- (1/32) secondth part of an in
circle and center bottom part of the groove a
such a manner, and suppose the knife on the oth
so adjusted as to extend beyond the opening in the recess into the plain of the curved portion of the disk so that the lower corner of the knife thereof, according to the discretion of the operator, shall describe a circle within one thirty-second part of an inch of the center portion of the groove, leaving thereby, of necessity, so as to leave a space between the lower corners of the opposite knives or between the circles described on each side of the center of the grooves as above designated, thereby creating such space of the length of one-sixteenth (1/16) of an inch, then I will ask you if the crooked portions of plow handles are placed upon the groove of a machine with knives so adjusted and with proper revolutionary motion, then I will ask you whether, in your opinion, there would be any difficulty in the practical operation of the machine so adjusted in doing and performing good work.

Ans. The machine with the bits set in that manner on the inner corner of the bits clipped on the stone when grinding, will produce the same result as if the space had been left in the bottom of the groove and dress the handle without any danger of cutting too deep or damage the handle.

R. D. 74 interrogatory: I understand you to say, then, that although a particular adjustment of the knives as directed by the specifications so as to leave really no appreciable space between the corners of the knives, provided that the corners of the 120 knives were slightly clipped by the grinding stone when sharpening, would produce the same practical effect in the working material as it would if the knives were so adjusted in the groove as to leave an appreciable space of more or less extent.

Ans. It would be practically and substantially the same in the working of the machine, as I have done that myself.

R. D. 75 interrogatory: I will ask you personally if you have not worked a machine of like character to that described in the patent and containing the same material and substantial mechanical principles and practical operation simply by holding the plow handle in your hand and without any rest whatever, you have applied a crooked portion of the plow handle, the lower curvature, for instance, to the machine having proper revolutionary motion and performed your work well?

Ans. Well, I have.

R. D. 76 interrogatory: If the specification, when legally and

truly construed direct or permit, according to the discretion of the operator, permits a longitudinal adjustment of the knives so as to approach the central line of the groove so as to leave either an appreciable or non-appreciable space between the corners of the knives and the center of the periphery according to the desire and will of the operator to adjust the knife to suit himself, is it your opinion that such operator would find any difficulty in performing good work with a proper revolution of the cutter-head by applying with his hands without any rest, in doing good work, in dressing the crooked portion of the handle?

Answer: No sir, we dressed thousands of handles with our two machines which I made without any rests, which machines were in mechanical principle the same as that of said patent, and were the ones that I built and have referred to and also the machine that was there before I went there. The old machine was not
121 a practical machine, and we were compelled to make a new one, and the old machine was not on the same mechanical principles of the patent, and destroyed so many handles that we were compelled to make a new one. It was a miserable old machine.

J. W. BARTLETT. (Signed.)

Deposition of J. G. Aram.

J. G. ARAM, aged 52, of the City of Moline, being produced, sworn and examined on the part of the plaintiff, deposeth and swears as follows:

89 Interrogatory 1st. What is your name, age, occupation and place of residence?

Ans. Johnathan G. Aram, age 52 years, wheelwright by trade; South Moline Township.

2nd interrogatory: How long have you been a resident of Moline or vicinity?

Ans. Over fifteen years.

3 interrogatory: What is the character of your present business?

Ans. I am now engaged in the construction of an experimental machine for the World's Fair.

4th interrogatory: State whether or not a considerable portion of your time for the past several years, say ten years, last past and over, has been devoted to the construction of mechanical implements in connection with inventions of various kinds, state particularly.

Ans. The main portion of my time has vention and improvement of mechanism of character or in litigation to enable me to rea

5th interrogatory: Please explain by the term "mechanism of a somewhat similar character?"

Ans. To be more particular, the actual inventions consisting of a machine for turning wagon axles, and a gang spoke lathe for turning spokes by pattern.

6 interrogatory: State whether or not the pursuit of your said business required you to examine into and study the laws and forces and mechanical forces as applied to machinery, both generally and particularly, and to compare machinery with drawings?

Ans. Yes sir, to a very large extent.

90 7 interrogatory: You have then, have you not, acquired a both theoretical as well as practical knowledge of mechanics?

Ans. I have certainly acquired some such knowledge of the things mentioned while pursuing my vocation.

8 interrogatory: I now show you the document purporting to be the original letters patent issued out of the United States Patent Office, wherein Amos K. Cavelry is recited as being inventor and Sarah Caverly as assignee of said invention, and said letters patent being numbered 303,116. You will please examine carefully the specifications and claim and drawings attached thereto, and after carefully so examined the same, I will call your special attention to the said drawings illustrating the machine described in the said specifications and claim, and especially to figure one of said drawings, and will ask you to state how said machine so illustrated is constructed, including its several component parts, and the combination of such parts including the disks and the groove between the disks and the knives attached to the sides of the disks and will ask you to give such general and particular construction of the machine as may occur to you?

Answer: The machine as shown and described in the patent consists of a cutter-head constructed of two cylindrical disks, each with a concave on its inner face extending from beyond its diameter from beyond the periphry secured with their faces together. The concaves forming a groove on the periphry of the head. Three openings from the sides of the cutter-head are made in which knives are secured, the cutting edges of which project through the crescent-shaped openings. Said cutter-head is keyed to a main shaft having bearings in a frame in which it revolves, and is driven by a pulley in the ordinary manner.

9 interrogatory: I will call your attention to figure two of
91 the drawings and especially to the recesses shown therein, and

to the several cutter knives and the cutter knife beds and to the method of the adjusting and fastening said knives to their beds and the manner of securing the said knives, and ask you to give a general and particular description of that portion of the machine represented by figure two, as it may occur to you.

Ans. Figure two shows the outer face of the disks, that is, a side view of the cutter-head. It is provided with openings through which the knives pass, said knives being provided with a slot for adjustment and a bolt or set screw to secure them. The knives are concaved on their cutting surfaces to fit a convex bed at one end of recesses, and apparently it appears to be a convex bed in figure two.

10 interrogatory: I will call your attention to figure one in said drawing, and to that part of the same in which the knives described in the specifications are secured to the sides of the disks, and will ask you to state in what form said knives appear to be attached to the sides of the disks, including the position of said knives as to their curved faces and whether such curvature of said knives present their curvatures with faces towards the sides of the machine as from the sides of said machine or disks. State particularly as you are able.

(Objected to by counsel for defendant as irrelevant and immaterial unless counsel for complainant wishes to have it understood that the precise form and arrangement of the cutter knives so specified in his question is necessary and essential.

92 Answer: In figure one the cutter is provided with a concave bed on which the knife rests, the cutting end of the knife being ground from the round side to an edge. The hollow or concave side of the knife being outward from the sides of the disks.

Inter. 11. I will call your attention to figures four and five respectively, and please state the form of said knives respectively and the difference in respect to said knives in cavity and form.

(Question withdrawn.)

12 interrogatory: I will call your attention to figure three and figure four in connection with figure one, and call your special attention to each of said figures as to the manner in which said figures represent the concavity of the knife and the beds upon which they rest, and explain whether or not said figures represent

the convex portion of said knives as resting State particularly as it occurs to you.

(Defendant's counsel renews his last two objections.)

Ans. In figure three the knife is shown as secured in a concave bed. Figure four shows a knife fitted to such bed, the same is shown in figure one, the knife being sharpened in figure four as already described.

13 interrogatory: I will call your attention to figures four and five relating to the cutter knives and state their particular form as to concavity or otherwise?

93 Ans. Figure five shows a knife made of flat steel, while figure four is concave, the end of the knife in figure five being differently ground for the purpose of presenting a proper edge to the work.

14 interrogatory: You will state whether or not when a flat cutter knife is used, as you have stated, in connection with the machine, on what sort of a bed would said cutter knife be properly adjusted, whether on a curved or flat bed or otherwise?

(Objected to by defendant's counsel as immaterial and as being fully answered by the specifications.

Answer: Necessarily on a flat bed pitched at its proper angle.

15 interrogatory: State in what direction the cutter knives, when properly fixed upon their beds, approaches the crescent-shape opening into the plane of the inner curved portion of the disks. Whether on an inclined plane or angle or otherwise. State particularly.

Answer: The knives are secured on an inclined plane at about the same angle of an ordinary carpenter's plane bit.

15 interrogatory: Your attention is called to figure two of said drawings and to the particular adjustment of the knives therein expressed upon their beds and especially referring you to the external end of the knife as they seem adjusted in the drawing, and describes as nearly as you are able the position of the head of the knife with the periphry of the disks, and with respect to the point or cutting edge of the knife and its distance from the edge of the periphry of the disks?

Answer: When the cutter-heads are being rotated, the outer or dull end of the cutter knife describes a circle having a some-

what smaller diameter than the circle described by the cutting
94 edge.

16 interrogatory: I will ask you if the distance from the center of the periphry to the point of the upper cutting edge of the knife is not a greater distance than the distance from such center of the disks to the upper corner of the dull end of the knife?

Answer: It is, sir.

17 interrogatory: State what is the office or purpose of the crescent-shaped opening at the inner extremity of the recess?

Answer: To deliver the chips and the and the reason why it is crescent-shaped because it has a concaved bed, the shape of the openings depends upon the shape of the knife and the shape of the groove in the cutter-head.

18 interrogatory: State upon what part of the crescent-shaped curves the cutter knives pass through such crescent-shaped openings to the inner curved plane of the disks, whether or not upon the longer curvature or upon the shorter curvature?

(Objected to by defendant's counsel as being immaterial.)

Answer: It passed over the longer curvature.

19 interrogatory: Please state over which of said two curves of said opening the chips are designed to pass in their egress from the groove?

Ans. The chips pass over the upper or hollow face of the knife. providing it is a curved knife.

Whether the knife is flat or curved it would pass over the upper face of the knife.

20 interrogatory: State whether or not the chips in their egress would not come in contact with the upper or shorter curve or line of the opening also?

Ans. Yes sir, when crowded.

21 interrogatory: At what part of figure two are the cutter knives attached to the knife beds?

95 (Objected to by defendant's counsel as being immaterial.)

Ans. About one-fourth of the distance from the outer edge of the disk to its center. It passes through the knife about one-third of its length from the cutting end. In other words the bolt or screw passing through the cutter knife into the disks at a point

about one-(¼) fourth of the distance betwee disks and the center of the disks.

22 interrogatory: State of what materi cording to the specifications and drawings, are composed?

(Objected to by defendant's counsel as being immaterial.)

Ans. The inventor says it might be made in his specification of iron, steel or other suitable material. In reference to the supporting frame or block designated by the letter "F" in figure one, for the resting of the material while running through the machine, is composed of wood.

23 interrogatory: You may state whether or not you have ever seen and examined a machine located in defendant's machine shops in Moline which from its construction appears to be designed for the dressing of plow handles and cultivator handles and other like implements and especially the crooked portion of said handles or implements?

Ans. I, this morning, December 2nd. A. D. 1890, saw such a machine in operation in defendant's work shop at Moline, Ill., designed for and dressing plow handles being constructed for the purpose mentioned.

24 interrogatory: You will please give a general and particular description of said machine as may occur to you.

Ans. The machine I saw in operation at Deere & Company's shop in fully described in complainant's letters patent, that is in the specifications and drawings thereof, with the difference that the Deere & Company machine have three revolving cutter-heads on one shaft and some changes have been made in the mode
96 of supporting the work while being operated upon.

25 interrogatory: Please explain more clearly what you mean by the phrase "in the mode of supporting the work while being operated upon."

Ans. Complainant's patent shows a horizontal bar upon which to rest the work while the Deere & Company's machine have in addition upright or lateral supports. The Deere & Company machine is provided with a gauge or stop to control the work longitudinally.

26 interrogatory: Then I understood you to mean that certain fixtures belonging rather to frame work upon which said machine of Deere & Co. is placed and matters collateral of wood work subserving a collateral purpose in connection with the running part of the machine; I mean that part of said machine which cuts

and dresses the material, and that the differences which you mention between the machine described in said letters patent, and the machine you examined in the defendant's shop does not relate to the particular machine itself, as a whole or any of its component parts, but only to certain fixtures outside of the construction of the machine. Do I understand you correctly?

(Counsel for defendants objects to the question as leading and as assuming more than it is believed has been stated by the witness, and also objects to the form and construction of the question in that it is so much involved that it is difficult to comprehend it.)

Answer: The changes made I should call component parts of the machine used by Deere & Company. I might not go so far as to say that they were operating parts of the machine; they may be necessary on some kinds of work, probably are convenient in dressing plow handles.

27 interrogatory: State whether or not the differences which
97 you have mentioned in your above answer have any relation to the cutter-head or to any of its component parts of which it is constructed?

Answer: They don't at all affect the working of the cutter-head, but control the direction in which the plow handles approach the machine to be operated upon.

28 interrogatory: Then you may state whether or not, in your opinion, in view of your examination of that portion of defendant's machine, constituting simply the cutter-heads which you have mentioned, and the component parts of which said cutter-heads are severally constructed, and in view of your examination of the machine described in the specifications annexed to said letters patent, and to which has been referred to in your examination above. Please state whether or not there is any material or substantial differences between said two machines with respect to the mechanical principles upon which each of the same are constructed, or in the modes of their operation and their results?

Ans. The parts of the machines inquired about are of the same mechanical construction and operated substantially in the same way, they are also used for the same purpose. I mean there is no substantial—

29 interrogatory: Then you may state whether or not in your opinion, in view of your examination of that portion of defendant's machine constituting simply the cutter-heads which you have mentioned, and the component parts of which said cutter-heads are sever-

ally constructed, and in view of your examination of the machine described in the specifications annexed to said letters patent, and to which has been referred to in your examination above, please state whether or not there is any material or substantial differences between said two machines with respect to the mechanical principles upon which each of the same are constructed or in the
98 mode of their operation as specific machines, and their results.

(Objected to for the reason the question has been fully answered. Defendant's counsel interposes the objection.)

Answer: There may be a specific difference, having three cutter-heads on one shaft may be a specific difference; a difference in material may be a specific difference in the two machines, as I understand the term specific, but there is no substantial difference either in construction or in mode of operation so far as regards those parts of the machine inquired about. The results are necessarily the same.

30 interrogatory: State whether or not, in your opinion, any differences between two machines of the character above described, relating simply to the particular dimensions, as for instance, as to length, breadth and thickness of the component parts with which the same are constructed would change or make any any difference in the mechanical principles of the machine or in the mode of operation?

Answer: To change the diameter of the revolving cutter-head might increase the speed of the knife, but the amount of material of which the machine is composed, or the kind of material it is composed would make no difference in the principle of the operation of the machine, provided it was properly built with sufficient strength to do the work, generally such changes made as to dimensions would not change the mechanical principles of the machine or its mode of operation.

Cross-Examination by A. H. Adams.

X 31 cross-interrogatory: Mr. Aram, have you read the entire specification and the claims of the complainant's patent and do you understand the same?

99 Ans. I have and think I understand them.

X 32 cross-interrogatory: In your opinion, would it be a departure from the invention covered by the said patent to construct

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a cutter-head with the cutting blades or bits placed at a different angle from that shown in the drawings?

Answer: Not if they did the same work, if they were changed to materially interfere with the work, they might not interfere with the patent.

X 33 cross-interrogatory: Then it is your understanding as an expert, that a machine constructed substantially like the device of the patent, but which might not do first-class work, would not be covered by the patent?

Answer: That a machine so changed that it would not do the work, would not interfere with the patent, but if it was at all useful, it would interfere with the patent unless constructed on an entirely different principle.

(The plaintiff's counsel objects to the foregoing answer as incompetent testimony, as expressing rather rules of law than of matters of fact or rules of law as relating to the specifications of the invention.)

X 34 cross-interrogatory: You may state whether or not, in your opinion, a cutter-head that had the knives or bits secured in place opposite each other, instead of alternating as shown, would infringe the patent referred to?

(Plaintiff's counsel objects to the question, for the reason the question tends to elicit from the witness a legal construction of the specifications annexed to the patent and the claim therein and of the invention and the extent of the invention described therein, which is the province of the court to determine.)

Answer: Not knowing the state of the art at the time the invention was made, I am unable to answer that question.

100 X 35 cross-interrogatory: If it were old and well known at the date of the application for complainant's patent to construct cutter-heads for operating upon bent handles in which cutter-heads there were knives, upon each side and opposite to each other, would it, in your opinion, have required invention to construct a cutter-head for the same purpose with the knives located as shown in said patent?

101 Answer: If such supposed machine was known and operated before an inventor, it would not require invention of a high order to construct complainant's machine, provided, as before stated, the supposed machine was operated for a like purpose.

Complainant's counsel objects to
as being elicited by defendant's c
cross-examination.

X 36 cross-interrogatory: You have stated in your direct testimony that a narrow cutter-head such as you saw in use in defendant's factory to-day, was equivalent to the cutter-head of the patent, and as I understand you, you have also stated in the last answer or so, that the knives on opposite sides of the cutter-head might be placed opposite at each other, that is, arranged in pairs. Now, I will ask you to state whether or not, in your opinion, if the openings, little "b2" 2 of the drawing, were continued upon each side of the cutter-head so as to make grooves in such cutter-head, would that construction be equivalent to the construction described in the patent?

Answer: The cutter-head suggested and described by defendant's counsel would, in my opinion, be equivalent to those shown in plaintiff's patent provided the suggested differences did not destroy the usefulness of the machine.

X 37 cross interrogatory: You may state whether or not, in your opinion, it makes any difference what form or shape is given to that side of the recess, little "b3," which is opposite to the side of the recess on which the knife or bit is secured, so long as it is shaped sufficiently large to permit the shavings or chips to be discharged?

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Answer: In my opinion, changes made in such place would affect the smooth working of the machine, and if so enlarged that the groove in the periphry of the cutter-head were so enlarged as to change the confirmation of the said groove so as to not give proper support to the work being dressed, it might destroy the utility of the machine.

X 38 cross-interrogatory: Do I understand you to mean that the shape of that part of the recess opposite to the bolt hole, little "e3" "b3," could not be changed from the shape shown and the cutter-heads still perform the work for which they are designed?

Answer: It would no doubt admit of some changes without destroying the utility of the machine, but the knife would have to be changed accordingly.

X Int. 39 cross-interrogatory: Please give an illustration of how such part might be changed in shape and a cutter-head so changed in that slight particular be the equivalent of the cutter-head of the patent?

Complainant's objects to the question for the reason

that it is not proper cross-examination, and for the reason the question does not elicit any matter of fact, or of law connected with the case, and that the witness to construe the specifications in the patent as a matter of law.

Answer: No matter what change there might be made in the opening mentioned, if said change did not destroy the utility of the machine, it would be an equivalent of the machine described in the patent, in my opinion. I believe they would be equivalent no matter what the shape or size of the openings 103 are. If it only compares with it in a degree only they would still be equivalents, but if they would destroy the utility of the machine, they would not.

X 40 cross-interrogatory: The specification and the claims call for a cutter-head having a groove in the periphry the shape and size of the curve or oval on the dressed handle; can the cutter head of the patent when driven by any suitable means be caused to give the proper shape to a plow handle, by the operator simply placing a rough handle in the groove of the head?

Complainants objects to the question as above.

Answer: I should think it possible to do it without any other support and I would say further I have seen it operated without such supports, except that afforded by the revolving disks.

X 41 cross-interrogatory: You will please state when and where you saw such operation performed?

(Complainant's counsel objects to the foregoing question as not being proper cross-examination and eliciting from the witness matters not material to this case.)

Answer: In the shops of the Moline Plow Company, some five years ago or about five years ago.

X 42 cross-interrogatory: Do you know who made that machine?

(Complainant's counsel makes the same objection to the foregoing question as that given above.)

Answer: No sir, I do not know who constructed it.

X 43 cross-interrogatory: Can you swear positively that it was not seven years ago that you saw that machine?

(Complainant's objects to the foregoing question the same as above given, and for the reason that it attempts to elicit evidence not applicable to the issue of the case.)

104 Answer: Yes sir, I can swear positively that it was not seven years ago.

X 44 cross-interrogatory: Can you state whether or not the machine that you allude to was made by the patentee of complainant's patent?

(Complainant makes the same objection to the foregoing question as the last above given and as being not proper cross-examination, and as constituting a fishing expedition wholly foreign to the cross-examination.)

Answer: I was so informed by the patentee himself.

The further taking of testimony was adjourned until to-morrow morning, December 3rd, 1890, at ten o'clock A. M.

Wednesday, December 3, 1890, at 10 o'clock in the forenoon. Met pursuant of adjournment. Present as before.

Cross-Examination of the witness, J. G. Aaram resumed.

X 45 cross-interrogatory: Can you state positively whether the machine, the machine that you saw in the shops of the Moline Plow Company, five years ago, was, as regards all details, exactly as shown and described in the Caverly patent?

(Complainant objects to the answer as not being proper cross-examination, and not material to the issues.

Ans. I could not swear positively that it was like it in every detail, but I can swear that it was like it in every important particular.

X 46 cross-interrogatory: Is it not a fact that in forming plow handles on a cutter-head constructed like the one shown in the Caverly patent and without using some rest or support similar to the rest marked large "F" and with the disk making say 2000 revolutions a minute, the operator would have to be exceedingly careful in order to prevent the handle being cut away too much. I ask you to answer this question as a practical mechanic?

105 (Complainant's counsel objects to the question as not being proper cross-examination.)

Answer: The operator would have to exercise great care in operating a machine under such circumstances.

X 47 cross-interrogatory: Then, in your opinion, the machine would not be practical for forming handles of the character referred to unless a rest or support similar to large "F" of the patent were provided?

(Complainant's counsel makes same objection as above.)

Ans. I am of the opinion that the machine could be operated without said bar and knife, and and believe and having seen one in practical operation without any rests whatever than that which was provided by the frame-work of the machine, and have seen one in practical operation. The one I refer to was the one mentioned as being seen in the Moline Plow Company shops.

X 48 cross-interrogatory: Then do I understand you to say that the rests or supports for the work in that machine was furnished by a portion of the framework?

Ans. To the best of my recollection it was operated without any rests at all whatever.

X 49 cross-interrogatory: How many times within the last five years have you seen that machine in operation?

Answer: I have never seen the machine in operation either before or since that time, to my recollection.

X 50 cross-interrogatory: It would be impossible for you to swear positively that that machine was operated at the time you saw it without a support for the work. Is that correct?

Answer: To the best of my recollection it was operated
106 without such support, but would hesitate to swear positively that it had no support whatever.

X 51 cross-interrogatory: If the machine having a cutter-head like that of the patent were used together with the support for the work such as shown, the product would be a plow handle of the same shape on the side it was dressed, as a plow handle ready for attachment to a plow or cultivator, could it not?

Ans. That would depend on the skill of the operator, the one that I saw produced by the Moline Plow Company's machine seemed perfect without any further work being performed upon it.

X 52 cross-interrogatory: You may state whether the handles that you saw made yesterday at the defendant's works, after

being dressed upon the cutter-heads, were of the same shape and size of the curve or oval of a finished handle ready for attachment to a plow or cultivator?

Ans. They were, sir.

X 53 cross-interrogatory: Did you ever see the finished handle having a longitudinal rib upon the upper side thereof, and a similar rib on the opposite side thereof? I mean by a finished plow handle, one attached to a plow or ready to be so attached to a plow, or ready to be so attached without any more work being put upon it, except possibly painting?

Ans. The plow handles I saw dressed in defendant's shops yesterday had such longitudinal ridges and I believe, but I am not quite positive, that I have a plow bought at the Deere & Co's shops, the handles of which are ridged in the same manner.

X 54 cross-interrogatory: All of the plow handles that you saw finished on the cutter-heads of defendant's shops yesterday had the ridges referred to?

107 Ans. Yes sir.

X 55 cross-interrogatory: You will please state what caused such ribs or ridges, and you may state also, if you can, the reason why they were formed on such handles.

Answer: The cutter-heads and knives are made for the purpose of leaving such ridges, the reason may be that they wish to strengthen the handle in that direction. But possibly the uncut or ridge may be left for the purpose of guiding the handle while passing over the cutter-head and to gauge the depth of the cut made on the rounded part.

X 56 cross-interrogatory: Whatever the object, it is certainly a fact, is it not, that such ridges do prevent the handle being cut away more than it is desired even though through carelessness or inattention on the part of the operator, the handle should be left longer than necessary in the groove in the cutter-head?

Answer: I think the machine, as constructed, would require and skill on the part of the operator, the groove in the cutter-head which produces the longitudinal ridge may help somewhat, but such machines cannot be properly run without great care and skill on the part of the operator, no matter whether such ridge be produced on the plow handles or not.

X 57 cross-interrogatory: As constructed, however, would defendant's cutter-head continue to cut away the wood of the handle beyond what cutting that was desired, if the handle remained in the groove of the cutter-head longer than was necessary?

Ans. The peculiar construction of defendant's cutter-head 108 certainly gauges the depth of the cut, but in my opinion, if

the operator was to dwell too long, or a different length of time on different parts of the handle, the result would be a misshapen handle, but not misshapen to the extent that a handle would be produced on a cutter-head which had no such ridge or gang provided for it.

X 58 cross-interrogatory: The plow handle after it has been cut away to the extent desired approximates very closely in shape to the groove in the head, and the ridge or rib referred to corresponds in shape and size to the smaller groove in the bottom of the large groove in defendant's machine. Is that correct?

109 X 59 cross-interrogatory: I will ask you to state whether, in your experience as a mechanic, seen or used any rotary cutter-head prior to November, 1883.

(Complainant's counsel objects to the question for the reason the same is not proper cross-examination and irrelevant.)

Ans. Yes sir, on numerous occasions have I seen them, but have never been employed to operate such cutter or machine.

X 60 cross-interrogatory: You may state whether any of the cutter-heads so seen by you employed a groove in their periphry.

Complainants enter same objection.

Ans. Yes sir.

X 61 cross-interrogatory: You may state whether any of such grooved cutter-heads so seen by you employed cutter knives the cutting edges of which projected in any degree into the groove of such head.

Ans. I think not, sir.

X 62 cross-interrogatory: Please state, as near as you can recollect, how the knives were arranged in such grooved cutter-head as you have seen, and what relation, if any, they have to the groove in the head?

Ans. The knives were arranged with their cutting edges at equal distances from the axis of rotation. They were secured by bolts or set screws, so that the fastenings did not interfere

110 with the groove or tongue. The knives were arranged when cutting grooves to scoop out the wood when cutting ridges, they were so arranged that they would leave a ridge by cutting away the sides of the board.

Re-Direct Examination by Mr. Nash of witness J. G. Aram.

R.-D. 63 interrogatory: The following cross-question was

Deposition of J. G. Aram.

asked the witness: "Can you state whether or not the machine that you allude to, was made by the patentee of complainant's patent," to which you answered "I was so informed by the patentee himself." You will please consider said answer with respect to just what said patentee did or probably say upon that occasion you allude to, and make such explanations as you deem proper?

(Objected to as calling for hearsay and also for asking the witness to guess as to what was said, by defendant's counsel.

Ans. My recollection of the matter is this. I was accosted by Mr. Amos K. Caverly on the street, and requested by him to go see a new machine which he had invented and patented, and had in operation at the Moline Plow Company's shops. I am not positive that he said he had constructed such machine by his own hands, but understood him to say to me that it had been constructed by his consent, under his supervision, and in accordance with his patent. That is the impression that I retained from the conversation had between us.

JONATHAN G. ARAM. (Signed.)

Deposition of Ralph J. Caverly.

127 1. Interrogatory 1st. What is your name?

Answer: Ralph J. Caverly.

2. Interrogatory 2nd. Are you the same Ralph J. Caverly whose deposition was taken on the first day of December, A. D. 1890, on this cause?

Answer: I am.

3. Interrogatory 3. When was it your father, Amos R. Caverly, died?

Answer: It was in July, A. D. 1886.

4. Interrogatory 4. What was your father's business for ten or fifteen years previous to his death?

Answer: A part of the time he contracted and part of the time he was in business in the manufacture of wagons, and at odd spells he spent his time at inventing.

5. Interrogatory 5. State whether or not he understood the carriage making as a business calling or profession?

Answer: He did.

6. Interrogatory 6. State whether or not he understood something about mechanics and machinery?

Answer: Yes, he did, and spent a good deal of his time in experimenting in that line.

7. Interrogatory 7. State what was the condition of your father's, the said Amos R. Caverly's, health for several years prior to his death, say for three or four years?

Answer: He was sickly, and for the year previous to his death was known to be in an extremely critical condition, and was not able to leave the house for nearly a year, with the exception of walking across the street to visit the neighbors, and then was almost exhausted in so doing. He was sick abed either in 1881 or 1882, and his health was failing from then on until his death.

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8. Interrogatory 8. What was the result of his extremely poor health, as you have stated, with respect to enabling him to accumulate a competency and some more than a competency of means for himself and family?

Answer: Take from 1882 until 1885, I had to keep the folks. My father was in debt, having mortgaged his home to go into business, and during his first spell of sickness his business was left in such an embarrassed shape that he was never able to recover therefrom. What money he made from his business was kept in the business, to try and put it upon a good footing, and my mother kept boarders to keep up the running expenses of the house.

9. Interrogatory 9. At what time did the spell of sickness occur which you mentioned in your foregoing answer?

Answer: It was in 1881 or 1882.

10. Interrogatory 10. How much estate, if any, did your father leave at the time of his death; I mean estate outside of any account of inventions?

Answer: He left nothing, but was in debt besides.

11. Interrogatory 11. State whether or not your mother, the said Sarah Caverly, the patentee set forth in the bill in this cause, owned any property, either real or personal, in her own right at the time of your father's death?

Answer: Nothing outside the household furniture and the patents, including the one in suit.

12. Interrogatory 12. State whether or not your mother owned in her own right any property, real or personal, for ten years prior to your father's death?

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Answer: Nothing, other than what was spoken of in the previous answer.

13. Interrogatory 13. State whether or not she was wholly dependent for her maintenance upon your father's efforts, and upon

such assistance as her children might furnish to her for many years prior to your father's death?

Answer: She was so dependent.

14. Interrogatory 14. State whether or not after your father's death, your mother was solely dependent for maintenance upon assistance afforded to her by her children?

Answer: She was up to the time of her death.

15. Interrogatory 15. State whether or not this patent in suit and one other patent constituted substantially all the property worthy of mention that she left at the time of her death exclusive the ordinary house furniture which she left.

Answer: It was.

16. Interrogatory 16. Of what value, if anything, was any patent which she owned outside of the patent now in suit at the time of her death; state according to your best judgment?

Answer: It would be hard to put a value upon them before they had been tested in the market. We had no money to push them with.

17. Interrogatory 17. State then whether or not, in your judgment, any patent which she owned outside of the patent in suit was practically to her estate of any more than of a mere nominal value.

130 Answer: They were not.

18. Interrogatory 18. State whether or not your mother or your father at any time prior to their respective deaths and after the issuing of the patent now in suit was financially able to retain and procure the services of an attorney or counsel, and bear such expenses as litigants ordinarily have to bear in causes brought for infringements of patents, to commence and prosecute suit or suits against other parties whom they believe to be infringing the patent in suit?

Answer: They were neither of them able, but I have heard both of them state that if ever they were able, parties that were infringing said patent would smart for it.

19. Interrogatory 19. State what you understood them to mean by stating what they would do in case they should ever be able, as you stated in the last part of your answer, whether they intended to simply bring suit against such infringers.

Answer: That is what I understood.

20. Interrogatory 20. You understood them to say that they intended to bring suit whenever they got able?

Answer: That is how I understood them.

21. Interrogatory 21. State whether or not, to your knowledge, your mother ever offered to sell to the defendants, Deere &

Company, a shop right to use the patent right now in controversy, and which is covered by the letters patent now in suit, in connection with their manufacturing establishment?

Answer: She did.

22. Interrogatory 22. In about what year did she make such offer?

Answer: In the year 1884.

131 23. Interrogatory 23. What time in the year of 1884?

Answer: It was in the fall, shortly after the patent came, not more than three months.

24. Interrogatory 24. You may state what the terms of her said proposal were?

Answer: She offered them a shop right for one thousand or three thousand dollars, and a county right for five thousand dollars, and stated that she would sell them the whole entire patent very cheap at that time as she was in a financial straight.

25. Interrogatory 25. State whether or not your mother ever offered to sell any shop right of her said patent to the Moline Plow Company?

Answer: I knew of her going to the Moline Plow Company with a view of making negotiations with them, but not being present with her I can not testify as to any conversation between her and the officers of the Moline Plow Company.

26. Interrogatory 26. State whether or not you in any manner understood from her that she had effected any such shop right sale to the Moline Plow Company in pursuance of such attempt on her part?

Answer: The day or two after her going to the Moline Plow Company, it might have been the same evening after her going there, I heard her state that the Moline Plow Company were trying to baffle her, that they thought, she presumed, that as she had no money they would pay no attention to her; is the substance of what she said.

27. Interrogatory 27. State whether or not you understood from your mother that her said proposition to Deere & Company or any part of her said offer was acceded to by said Deere & Company?

132 Answer: I heard her state that they refused to do anything.

28. Interrogatory 28. State about what year it was that you understood your mother went to the Moline Plow Company with a view of selling said company a shop right to use said invention in its business?

Answer: It was about 1884 or 1885, it might have been as late as 1885.

29. Interrogatory 29. State whether or not you understood from your father and mother, previous to the death of your father, that one of the chief, if not the chief reason for hindrance to your mother, or to your mother and father, in disposing rights to others to make and use, or to use your mother's said patent right or invention covered by said letters patent, was the fact as they believed of the infringement of said invention by said Deere & Company and the said Moline Plow Company, respectively?

Answer: That is the way I understood them.

30. Interrogatory 30. State whether you were present at the examination of the witnesses, John W. Bartlett and J. G. Aram, on the first, second and third days of December, A. D. 1890, in this cause?

Answer: I was.

31. Interrogatory 31. State whether or not you ever saw the machine referred to by said witnesses as then being in the shops of defendant and with respect to which the said witnesses testified?

Answer: I did; I was with the witnesses when they looked at the machine.

32. Interrogatory 32. You may state whether or not about
133 the year 1885 you saw said machine in said defendant's shops, located therein at the same place or substantially near the same place?

Answer: Yes, I seen the machine there, it might have been a few feet from where it was when I accompanied the witnesses on December 1st and 2nd, A. D. 1890.

33. Interrogatory 33. State whether or not said machine seemed to have attached to it the property appliances for motor power?

Answer: It had.

34. Interrogatory 34. State whether or not plow handles bent in the rough as though the same were ready to be dressed by the said machine?

Answer: They were.

35. Interrogatory 35. State whether or not you at that time or at any near time at or before this occasion you saw plow handles, cultivator handles, or handles of a like nature being dressed on the said machine?

Answer: Yes, not very far from this time I saw them, plow or cultivator handles necked or dressed by the machine.

36. Interrogatory 36. State whether or not you saw on the occasions mentioned in the two last questions and answers or there

a noticed more than one machine or cutter-head on the same shaft,—w answer according to your remembrance?

Answer: I recollect of seing more than one cutter-head on the same shaft, but do not recollect as to a third cutter-head.

Counsel for the defendant objects to the entire foregoing deposition of the witness except that portion referring
134 to the use of defendant's machine prior to the filing of the bill, as incompetent, irrevelevant and immaterial.

Cross-Examination.—De bene esse.

37. Interrogatory 37. Do you know whether or not your father was engaged in any factory or factories in Moline, and if so, please name the factories in which he was employed?

Objected to by counsel for complainant as not being proper cross-examination.

Answer: I think he worked in a chair factory on the Island at the close of the war. Helped construct a building at the paper-mill very soon after the close of the war. He worked at Barnard & Leas a little while, not very long. He worked for Deere & Company shortly after that time for about seven or eight years, I guess. He worked in the Moline Plow Company and for the Moline Wagon Company. He worked a little on one of the saw mills Demick, Gould and Company.

The complainant interposes the same objection to the foregoing answer.

38. Interrogatory 38. State, if you know, about how long and between what years he worked for the Moline Plow Company?

Answer: I cannot say, but think he had not worked for either of the plow factories in Moline for fifteen years previous to his death,—I could not say positively.

39. Interrogatory. Can you state what character of work he was employed upon by the Moline Plow Company?

Answer: Principally at wooding or stocking plows, which is
135 putting the wood work and the iron work together, and in adjusting the parts of the same after its having been partially gotten out.

RALPH J. CAVERLY. (Signed.)

Deposition of John D. Wiley.

140 JOHN D. WILEY, a witness produced by complainant in rebuttal, being first duly sworn, deposes and says, in answer to interrogatories to him propounded for complainant, as follows:

Int. 1. What is your name, age, and place of residence?

Ans. John D. Wiley; 53 years; residence, Grand De Tour, Illinois.

Int. 2. You may state what has been your calling or trade during the greater part of your active life?

Ans. I have been a machinist the most of my life.

Int. 3. State whether or not you consider yourself as having had in your said calling or trade the qualifications of a master mechanic and machinist?

Ans. I consider I was a good machinist, and was so considered by others.

Int. 4. State whether or not you consider yourself as having both a theoretical and a practical knowledge of mechanics?

I considered myself pretty competent in judgment and practice in mechanical work.

Int. 5. State whether or not you considered yourself as having a theoretical as well as a practical knowledge of mechanics?

I considered myself in that light.

Int. 6. You will please examine this machine and the particular construction thereof, which is now shown you, and which complainant now introduces as evidence in this cause on his part, and which is also attached to your deposition herein now being taken marked "Exhibit A" by label attached thereto, properly designating the same, and after you have examined said machine, state whether or not you find the body of the cutter-head or machine composed of two cylindrical disks so concaved on their inner surface near their periphry, that when their faces are placed together and secured the same form a groove of the shape of the material designed to be dressed?

141 I find this machine made, the castings in two set of pieces, bolted together and turned out on the inside, forming a hollow or groove the shape of a plow handle, for the material designed to be dressed.

Int. 7. You may state the particular manner in which the body of the cutter-head is constructed and in what it consists?

I can say that my former answer will answer this question.

Int. 8. You may state whether or not from inspection of the machine or cutter-head, and identified as "Exhibit A," you find the

cutter knives adjusted to the inner surface and sides of the grooves?

(Objected to as leading.)

I find that they are adjusted to the inner surface and sides of the groove.

Int. 9. You may state in what manner you find the cutter knives is adjusted to the inner surface and sides of the grooves?

I find the knives adjusted to this machine and to the groove therein on an angle on inclined beds, on observation I should judge to be about 45 degrees, fastened with set screws or bolts.

Int. 10. State whether or not, on your inspection of the machine, you find any aperture or narrow opening in the inner sides or surface of the groove above the upper planes of the knives and passing from the inner plane or surface of the grooves to the outer sides of the machine, constituting an easy or ready escape for the shavings and chips. State what you find is the case in regard to the subject matter of the question?

(Same objection.)

I find on examination a narrow opening, commonly called a throat, through the sides of this machine where the knives go through, for the chips to escape.

Int. 11. You may state what provision you find, if any, in 142 the adjustment of the knives to the groove for the ready and easy discharge of the chips?

I can't say that I can answer that question any different, any more than I should say that the chips or shavings would escape in good shape.

Int. 12. You will now please examine this machine which is now shown you marked "defendant's Exhibit Grand De Tour cutter-head, and after having examined the same, state whether or not you find the cutter-head or machine, that is, the body of said cutter-head or machine, is composed of more than one piece. State according to the fact as you find it.

I find the machine now shown me to be composed of one casting.

Int. 13. State whether or not, from inspection of the machine, you find a groove in the periphry of the same?

Yes, there is a groove in the outside of the periphry or in the periphry.

Int. 14. State whether or not you find cutter knives, four in number, adjusted to the groove of the machine?

Ans. I find two on each side of the block of the machine.

Int. 15. State in what manner you find the knives to the machine adjusted to the groove, whether longitudinally and laterally in the sides of the machine or otherwise? Describe the position of the knives as nearly as you are able?

I find the knives of this machine set a very little on an angle two different ways.

Int. 16. State whether or not you find the knives adjusted in the beds of the machine with the sides of the knives passing down into the body of the machine and very nearly at right angles with the plane of the sides of the machine and with the upper narrow edge of the knives being parallel, or nearly parallel, with the plane of the sides of the machine.

I find the knives nearly parallel with the side or outside face of the machine.

Int. 17. State to what extent the knives are thus passed down toward the central part of the body of the machine, whether in a line with the center part of the groove or otherwise?

The sets of knives together, the inside cutting edges, meet together, and pass down the throat of the machine.

143 Int. 18. State for what purpose the knives are adjusted in the side of the machine and to the groove upon a slight incline or angle?

The knives of this machine were set upon a slight side angle along the side of the machine in order to allow the whole to be drilled to fasten or get the bolt in which holds the knives.

Int. 19. You may state in what portion of the side of the machine you find the knives located as between the center of the machine and the periphry, whether at a point nearly half way between the center and the periphry or otherwise?

I find the lower edge of the knives terminates about half way between the center of the machine and the outside periphry, the knives being four inches long.

Int. 20. You may state upon the supposition that the knives in said machine are thus located, at a point between the center of the machine and the periphry on a line drawn at right angles to the knives, what angle would be the upper part or cutting part of the knife make with the inner sides and surface of the groove?

The knives would stand at nearly right angles with a line drawn across the center of the head.

I couldn't answer that without using a degree scale. There

would be a very little cutting angle. I should judge by looking at it, about 60 degrees.

Int. 21. I understood you to say in your last answer that the knives of the machine adjusted in the manner stated, would form an angle with the inner sides and surface of the groove of about 60 degrees. You may now state whether or not, in your opinion, the adjustment of the knives as to locality in the side of the machine at a point about half way between the center and the periphry, is about the only practicable position in which the knives could be placed and still render the machine of sufficient strength for performing work thereon? That is to say, the only practicable position when the knives are adjusted in the method adopted in this machine?

(Objected to as immaterial.)

I don't think the knives could be changed on a much different angle from what they are now set without interfering with the fastening of the bolts and the strength of the machine.

Int. 22. State whether or not, upon inspection of the machine,
144 you find an aperture or opening leading from the sides and surface of the groove in front of the knives, forward toward the center of the body of the machine?

I find the aperture or opening referred to in the question.

Int. 23. You may now state whether or not, in view of the particular adjustment of the knives to the groove, said aperture or opening could, in the nature of things, form any practical passage-way for the escape of the shavings and chips.

I don't think that there was ever room enough for the chips to get out of the throat in good shape with the knives and bolt heads in the shape they are in.

Int. 24. Then do I understand you to mean that said aperture or opening do not furnish any free passageway for the escape of the shavings and chips?

Yes.

Int. 25. State whether or not, in your opinion, it is necessary or essential for the successful operation of a rotary machine of this kind that there should be some opening or passage-way connected with the adjustment of the knives to the groove which would readily and easily permit the shavings and chips to escape?

Yes, it is absolutely necessary that there should be such an escape.

Int. 26. You may now state, in view of your examination of

the two machines, you find a difference in point of fact in the construction of the two machines?

Yes, there is a great difference in the construction of the two machines.

Int. 27. You may state whether or not, in your opinion, that difference, which you mention, is a material and substantial difference?

I think it is.

Int. 28. You may state whether or not, in your opinion, the difference of which you speak, practically makes a material and substantial difference in the operation of the two machines and in their results as profitable working machines?

Ans. I think it does.

Int. 29. You may state whether or not a mechanic or machinist having proper qualifications in his calling and trade, and having before him for examination this "Grand De Tour" machine, and not having any special or direct knowledge of the construction of the machine referred to as "Exhibit A" of this deposition, such mechanic or machinist could construct a machine like or embracing the substantial and material principles of said last-mentioned machine, without the exercise of his faculties of invention?

I do not think he could.

145 Int. 30. State whether or not you, individually, had anything to do with the construction of this Grand De Tour machine?

I did.

Int. 31. You may state about what year it was in which you had something to do with the construction of the said machine?

Well, between 1865 and 1869 I built either two or three of these machines. This is one of the machines I built, unless I am mistaken in the marks on the knives and sides of the machine.

Int. 32. You have seen this machine in operation, have you not?

Yes sir.

Int. 33. Where was it you saw it in operation?

In the Grand De Tour Plow Works.

Int. 34. State whether or not you ever personally worked the machine by plying plow handles on the same to be dressed and the crooked portion of the plow handles.

I worked out plow handles on this machine after putting knives into it to test the quality of work they would do, probably between the years 1865 and 1869.

Int. 35. You may state in what condition the handle would be as to finish after being run over said machine?

Not very smooth. They had to be filed and finished in that way, and some slivers would tear up on the handles, more especially if they were a little cross-grained.

Int. 36. I would ask you whether or not, it was not the habitual practice by the company to have the handles, after being passed over said machine, dressed up by a drawing knife or drawing shave of some kind, whereby the rough features of the handle would be shaved off and smoothed as much as could be, splinters, if any, removed, and a file applied to the same and quite considerable work done to render the handle fit for use? State according to the facts, if you know them in full.

(Objected to as leading.)

Quite a large number of the handles they would spoke-shave, and use a file and sandpaper to finish, and if there was any slivers torn up, they had to be tacked down and puttied up.

Int. 37. State what the facts are, as you know them, with respect to the operating qualities of the knives when the handles were being passed over said machine in the process of being
146 dressed?

I never thought the machine done good work, but it was as good as we had in those days, that I knew of.

Int. 38. I understand then, by your previous answer, that you regarded the machine as having faults and imperfections which prevented the machine from performing good work.

That was what was my opinion.

147 Thursday, July ninth, A. D. 1891, met pursuant to adjournment. Present as before.

Examination of the witness, John D. Wiley, continued.

Int. 39. State whether or not, in your view of the working qualities of this machine, as you know the same to be—I mean the Grand De Tour machine—that the particular method in which the knives are adjusted to the body of the machine and the groove, constitute one of the leading imperfections of the machine which prevented the machine from performing good work?

(Objected to as leading.)

That's my opinion was the reason that the machine didn't do better work.

Int. 40. You may state what constituted one of the leading imperfections of the machine which prevented good work?

Defendant's counsel objects once for all to the practice largely indulged in by complainant's counsel of asking a grossly leading question, then, after the same has been answered, asking the same question in more general terms to elicit the same answer from the witness.

Ans. Well, the leading imperfection was the improper position or angle that the knives were set in.

Int. 41. State whether or not, in your opinion as a machinist, that said cutter-head or any cutter-head constructed in the same manner with respect to the adjustment of the knives to the body of the machine and the groove thereof, could, in the nature of things, perform good work in the process of dressing, or attempting to dress the necks of plow handles?

I think not.

Int. 42. I will call your attention again to the machine marked "Exhibit A" above referred to, and will ask you if you ever have seen said machine performing work, or having the necks of plow handles dressed thereon, and observed its working qualities and mode of operation in performing the work of dressing such plow handles?

Ans. I have.

Int. 43. State whether or not, in view of your experience and knowledge with respect to the working qualities of the Grand De Tour machine, and in view of your observation of the working qualities of said machine marked Exhibit "A," there is a difference in the working qualities of said machine?

148 I should say there was a great difference.

Int. 44. State whether or not, in your opinion as a machinist and as based upon your knowledge of the working qualities of said machines, that such difference is a material and substantial difference in the working qualities of said machines?

I think there is a material difference.

Int. 45. Which, then, of said two machines, in your opinion, as based upon your knowledge of the working qualities of those machines, and your opinion as a machinist, performs the most perfect and successful and practical work, and the most profitable to the parties using the same?

(Objected to as immaterial.)

I think the machine marked "Exhibit A" can do the best and most profitable and successful and smoothest work.

Int. 46. You may state what work and processes of finish, if any, it was necessary to bestow upon the necks of the plow handles after they had been passed over the Grand De Tour machine?

They were draw-shaved—sometimes spoke-shaved—filed and sandpapered.

Int. 47. State what was the condition of the neck of the plow handles after they were passed over said machine?

They were partly rounded up ready to be finished at the bench, with the tools mentioned before in the previous answer.

Cross-Examination.

Int. 1. How far back does your knowledge of defendant's Exhibit Grand De Tour Cutter-Head, and cutter-heads like the same, extend?

My first knowledge of it was between 1856 and 1860.

Int. 2. To what extent have you personally used such exhibit or cutter-heads like the same?

Never, except in times when I had fitted new knives or of the general repairing of the same.

Int. 3. Then such use, as I understood you, was only for a period long enough to determine whether the machine was in working condition?

Yes.

Int. 4. You are the same John D. Wiley who has heretofore testified in this cause on behalf of the defendant?

Yes sir.

Int. 5. How were the chips or shavings discharged from said head so far as you know?

149 Through a slot or opening cut in the block or body of the machine, in which the knives were inserted.

Int. 6. The sides of the openings you refer to are bevelled or cut away. Was that done for the purpose of permitting the more ready discharge of the chips or shavings?

Yes sir.

Int. 7. And such construction answered the purpose for which it was intended, did it not?

Yes sir.

Int. 8. In an ordinary carpenter's plane the quality of the work done by such plane would depend largely, would it not, upon the angle at which the cutting blade was set?

Yes, it would.

Int. 9. If in such tool the cutting block was set at an angle which did not allow of good work being produced, would it, in your opinion, require invention on the part of the skilled mechanic to change the set of the blade in order to improve the work?

The only way I can answer that question would be like this: If the plane was not adapted and fixed in some way for the purpose of adjusting or altering the set of the bit, I should think it would require some little study in order to do good work.

Int. 10. To make such change as suggested, would it require anything more than the exercise of mechanical skill on the part of a good mechanic in that line of business?

No, I don't know that it would.

Int. 11. In the case of a rotary cutter-head having cutter knives or bits secured thereto, would it require anything more than mechanical skill on the part of a good mechanic to change the angle of such bits or knives as might be desired?

In case of altering over, or adding to, or building on to any certain machine or part of a machine, to change the results or shapes of the work to be done, quite often it requires considerable skill, and sometimes inventive genius, in my opinion.

Int. 12. From your knowledge of the art as it existed prior to 1883, I will ask you to state whether it would have required anything more than mechanical skill to so change the beds of the knives of the Grand De Tour cutter-head as to cause the cutting knife to enter the groove at a greater or less angle?

150 To the best of my knowledge, I consider the most of these inventions in improving or points of improvement, in most cases, does require something more than ordinary mechanical skill.

Int. 13. What I want is to know whether, in your opinion, at the time stated, and in view of the condition of the art, it would have required anything more than the skill of a good mechanic to simply make the knives or bits on the Grand De Tour cutter-head enter the groove at a different angle from what they now do. Please answer with reference to that cutter-head alone?

I think it would.

Int. 14. Please give your reasons for your opinion?

My reason is this: First, because of having to devise some means of adding thereto some block, place or slide for those knives to rest upon and be fastened to.

Int. 15. Until the Grand De Tour Plow Company commenced buying plow handles ready necked, they necked all of their plow handles on the exhibit referred to, or other cutter-heads like said exhibit, did they not?

Yes.

Int. 16. What proportion of the plow handles, if any, were spoiled by reason of being necked on such cutter-heads?

I don't know what would be considered spoiled handles in that case, because in those days they used to use very many handles that never ought to have been used.

Int. 17. But they managed to use about all the handles that were necked on said exhibit and like heads, did they not?

Yes, they used the most of them, as far as I know.

Int. 18. Don't you know it to be a fact that all plow handles, after being necked on any grooved cutter-head, have to be smoothed off in some manner before being applied to a plow and painted?

Yes, I know they do more or less; that is, there is more or less work of some kind to be done on them, depending something on the nature of the timber used.

Int. 19. The main difference then between the work turned out on the Grand De Tour cutter-head and cutter-heads which
151 have succeeded it, was that the handles necked on the old Grand De Tour machine required more after work in the way of smoothing up and finishing generally?

They required more work to finish up than this other machine which I have seen work, more than I think it ought to have taken to do good work.

Int. 20. A rotary cutter-head, the body of which is in one piece, and a cutter-head having its body composed of two parts or halves are mechanical equivalents, are they not?

I should consider them to be as far as that is concerned, in doing work of one thickness.

Int. 21. State whether or not you find defendant's exhibit Grand De Tour cutter-head to be provided with two recesses on each side of the head, which diminish in width as they progress, and each terminate in a narrow opening in the groove or curve, forming beds for the cutters and spouts for the discharge of the chips?

I find that as described.

Int. 22. You also find in connection with the features described in the last question slotted knives secured in the openings and adjustable longitudinally therein by set screws, do you not?

Yes.

Int. 23. (*De bene esse.*) Where, when and in whose presence did you see the cutter-head "Exhibit A" operated?

In Bruin & Deeter's planing mill, about three or four weeks ago, in the presence of John Cool and the two Mr. Myers, and Mr. Caverly.

Int. 24. (*De bene esse.*) How long was such cutter-head

operated and what kind, and how much work was done thereon?

We set it up and run it two different days, about twenty minutes in all, and run through the machine, I should think, 25 handles.

Int. 25. (*De bene esse.*) At about what speed was the cutter-head rotated, according to the best of your judgment?

The best of my judgment would be, the speed was between 1800 and 2000 revolutions per minute.

Int. 26. (*De bene esse.*) Where were the handles obtained, and who brought them to the place of trial?

Don't know where they came from. Mr. Caverly produced them. I think he had them brought down in an express wagon from the depot.

Int. 27. (*De bene esse.*) They were good choice pieces of wood, weren't they?

152 Some of them were quite good, some of them were not so good.

Int. 28. (*De bene esse.*) Were any of them spoiled by dressing on that head?

Not that I know of. I think I examined all of them.

Int. 29. (*De bene esse.*) Was any cross-bar or rest placed in front of the cutter-head to form a support for the handles, to prevent the cutters in the head, cutting too deeply in the wood?

No sir.

Int. 30. (*De bene esse.*) Was any support used for that purpose or any support needed?

No support used, nor none needed.

Int. 31. (*De bene esse.*) The handles that were dressed, as stated by you, all had left on their upper and under surface, a narrow rib, which required to be removed before the handles were applied to plows, did they not?

Yes.

Int. 32. (*De bene esse.*) It could not be truthfully said of those handles then, that they were shaped "sufficiently smooth to go directly to the paint shop without further smoothing or finishing?"

They would require a small amount of work to remove that small rib spoken of; otherwise they were very nice.

Re-Direct.

Int. 1. I would ask you when the neck of a plow handle was being dressed on the Grand De Tour machine, in what direction, practically, were the great portion of the chips and shavings thrown?

The most of them flew in all kinds of shapes, all over, in no particular direction.

Int. 2. State whether or not it is true then, that practically, the great portion of the shavings and chips did not pass through the aperture or opening in front of the knives down toward the center part of the machine?

The escape for the shavings did not seem to let the shavings go out in any one particular place.

Int. 3. Then I would ask you if it is not true, as you have substantially testified in your examinatian in chief, that the opening or aperture in front of the knives, and passing downwards, do not constitute in said machine a free passage-way for the discharge of the shavings and chips?

I don't think it did.

153 Int. 4. Then I would ask you, that for whatever purpose this opening in front of the knives was made, or if they were intended to constitute a passage-way for the chips and shavings, they did not accomplish but very imperfectly the purpose intended?

That is my opinion.

Int. 5. You may state whether or not the handle now shown you was one of the handles dressed on the machine marked "Exhibit A" in your presence?

(Objected to as incompetent, not proper re-direct examination nor proper rebuttal, and further objected to for the reasons assigned as objections to said "Exhibit A".)

Yes, I believe that's the handle, one of them.

Complainant here introduces said handle as evidence in this cause marked "Exhibit B," with label attached making the proper designation. Same objection as to interrogatory 5 of the re-direct.

Re-Cross.

Int. 1. The handle just offered in evidence, not having been continuously in your possession since made, you are not able to swear positively that that is one of the handles made on "Exhibit A," or if so, that it is in the same condition as when removed from "Exhibit A"?

That is one of the same handles.

Int. 2. How do you know it?

I have had this handle in my possession several days since it was run through the machine, and by a slight indenture in the outside edge of the bend of the handle, it is in the same condition it was when it came from the machine.

Int. 3. Since answering my questions in the early part of the cross-examination in reference to the discharge of the chips and shavings from the Grand De Tour cutter-head, and before answering questions on re-direct touching the same matter, there was an intermission of an hour and a half, was there not?

Yes.

I have attend two days as witness and necessarily traveled twelve miles to give my testimony in this cause.

JOHN D. WILEY.

Subscribed and sworn to before me this ninth day of July, A. D. 1891.

JAMES SANFORD,
Notary Public.

[SEAL]

WILLIAM E. MEYERS, a witness produ
154 complainants in rebuttal, first being duly
says in answer to interrogatories propounded to him by D. B. Nash, counsel for complainant.

Int. 1. What is your name, age, and place of residence?

William E. Meyers, 47 years old, Dixon, Illinois.

Int. 2. State what has been your calling and occupation heretofore and now?

That of a plow wooder and stocker in the Grand De Tour Plow Shops, and am working for the same firm at present.

Int. 3. How long have you been working for said company and its predecessor?

Since before I was twenty years old.

Int. 4. State whether or not you ever saw this machine, which is now shown you, which constitutes defendant's "Exhibit Grand De Tour Cutter-Head?"

To the best of my ability I would say that that is the same old head that I saw run in the Grand De Tour shops year after year.

Int. 5. State whether or not you ever personally worked

said machine in the process of dressing plow handles upon the same?

I was once set to work upon that machine by my foreman and I couldn't work it, it worked so hard, and I was afraid of it.

Int. 6. You may state in what manner the machine acted in the process of dressing plow handles upon the same, which rendered the machine difficult to use and inspired fear of danger. State the particulars as near as you remember them?

The first reason was, it took a man with physical power to hold a handle upon that old head. It would fill with chips, then the handle would fly out unless powerfully held, and further, it shook a man's system all up, especially arms and shoulders, and a man could not work it but a little while at a time.

Int. 7. You say that a powerful man, as I understood you, would be able to run the machine but for a short time. Do you mean by that that such person would be able to run the machine but for two or three consecutive hours, or so, without rest. State what you mean by the matter.

155 I mean when those knives were in good trim, well sharpened, a man might possibly run it a half a day.

Int. 8. I will call your attention to the openings or apertures passing from the sides and surface of the groove down toward the center of the machine and in front of the knives. I will ask you now whether such openings or apertures practically afforded any easy passage-way for the escape of the shavings and chips?

They did not.

Int. 9. You may state what was the practical result of the shavings and chips being caught or pressed in said openings or apertures? Whether there was any choking up by the shavings and chips, or otherwise. State according to the facts, if you know them?

(Objected to as leading.)

The head would become clogged where the shavings should go, and if the handle was not held very firm it would jump out of the groove.

Int. 10. You may state in what direction the chips and shavings practically took in working the machine?

I will have to answer that, promiscuously, all over, every way.

Int. 11. State whether or not, as a matter of fact, the want of a proper avenue for the easy escape of the chips and shavings constituted a serious imperfection of the machine?

I would have to say it did. One of its greatest drawbacks, as I would term it.

Int. 12. I will call your attention to the particular manner in which the knives are adjusted to the sides of the machine, and to the inner surface and sides of the groove. I would ask you whether or not it is true, as a matter of fact, in view of your practical experience in running this machine personally and in seeing the same run by others, and in seeing the condition and character of the work done and effected by the machine in the process of attempting to dress plow handles, that the knives and the cutting edges of the knives were so adjusted as to cause a scraping of the knives over the material, rather than the proper cutting of the same, state according to the facts as you understand them?

(Same objection.)

I would have to say they were so placed in that head as to scrape chips or slivers instead of shavings.

156 Int. 13. You mean by shavings, as I understand it, that which is produced by a knife when it is passed over the material at such an angle as would produce a cutting of the material rather than the scraping of the material?

That's just what I mean exactly.

Int. 14. Then as I understand you, that the knives are so adjusted in the machine and to the groove of the machine as to produce chips and slivers rather than shavings made by a fairly cutting edge. Do I understand you correctly?

Yes, that is an explanation of what I mean.

Int. 15. You may state in what condition was the handle attempted to be dressed on the machine after the handle had been passed over it, and performed all that could be performed in the way of finish?

Varied conditions. Handles would come from that machine in a very rough condition, so much so, that the greatest number of them had to be necked over with a narrow drawing-knife, what I mean by that, cut out, then spoke-shaved to get them in shape.

Int. 16. State whether or not in addition to what the machine did, and the drawing-knife and spoke-shave did in the way of finish, rasp or files were brought into requisition as additional finishers sometimes?

(Objected to as leading.)

Yes, a coarse wood file used after spoke shave, then a finer wood file. Necks of handles were all sizes, so much so, that I was compelled to mate them up, before putting them on the Grand De Tour plow.

Int. 17. You may state what was the cause of such want of

uniformity in the necks of the plow handles after being subjected to the machine and to the various processes of finishing thereafter.

It was for the cause of the head doing such rough work, tearing the handles, the ends off, and in not getting an exact round on the neck of the handles. They had to be whittled to get them in shape.

Int. 18. You state whether or not you have given what you regard as a fair description of the various processes through which the handles, I mean the neck of the handles, were passed in order to prepare the same for adjustment in the construction of plows, and that such processes were applied to a large majority of all the handles dressed, or attempted to be dressed, on the machine?

157 To the best of my ability, I have given straightforward answers to all questions, and such processes were applied to a greater portion of the handles attempted to be dressed or that were dressed on the machine.

Int. 19. I will ask you what, in your judgment, that proportion was, expressed in a figure ratio, according to the best of your judgment?

That would depend upon how many *brosh* handles you had bent. You wouldn't get one out of a hundred but what would have to be spoke-shaved, perhaps not drawing-knived.

Int. 20. I understand then by your last answer that at least 99 handles out of a hundred which was passed over this machine for the purpose of being dressed had to be spoke-shaved and drawing-knifed, and files applied, in accordance with the description you have above given. Do I understand you correctly?

No, not exactly. If you had put *or* in there you would have had it right, spoke-shaved *or* drawing-knifed; 99 out of a hundred had to be spoke-shaved or drawing-knifed, according to my judgment. I would say perhaps you might get ten out of a hundred that would not have to be drawing-knifed—spoke-shaved only.

Int. 21. Then I understand you to mean by your several answers that about ninety out of every hundred handles dressed or attempted to be dressed on said machine had to be spoke-shaved, drawing-knifed, and filed with coarse and fine files, as you have recited in one of your above answers, in order to bring them to that finish necessary for the construction of plows?

To the best of my ability, that is what I mean.

Int. 22. You may state what office in the process of dressing handles did said cutter-head perform, and to what extent did it do the work of dressing plow handles?

It tore it off and left it oval on the sides, so it had to be shaped, rounded up with drawing-knife or spoke-shaved, and then filed

with coarse file and fine file and sandpapered, and every handle is sandpapered.

Int. 23. State whether or not quite a proportion of the hand-
158 les were put through the process of nailing down splinters and puttying up the same by a hand whose business it was to that part of the job; state the facts according to your knowledge?

(Objected to as leading.)

That is a question it would be impossible for me to answer the per cent. accurately, for some was split in bending the nack before applying the same to the old head, and nailed after being run over the head and dressed. That splitting was done in bending the nack, but not in all cases; there was a small per cent. torn by the old head that had to be nailed, and some were puttied—a small per cent.

Int. 24. State whether or not there was a large number of handles which when passed over said machine was so torn by the machine that in passing the handles through the subsequent processes of applying the drawing-knife and spoke-shave and files were of non-uniform shape, such as you have stated in your above answers?

(Objected to as leading.)

Why, I should say yes, there were.

Int. 25. Then I understand from your answer that the non-conformity referred to was caused by the tearing of the handle by the machine. Do I understand you correctly?

(Objected to for the reason that the witness has previously stated that a large proportion of the splitting of handles was caused by the bending of such handles prior to their being dressed on the head referred to.)

Yes, for this reason: a split handle in bending, nine times in ten, would do as good work on that class of split handles as it would on a handle not split split in bending.

Int. 26. You may state whether or not, in view of your knowledge of the practical workings or operation of said Grand De Tour machine, the knives adjusted to said machine and groove practically produced any chip or shaving, which was properly cut by the knives, as contra-distinguished from chips or shavings produced by the scraping of the knives over the material being dressed?

It did not produce a proper shaving; said head did not cut a proper shaving, as it should, to produce a finished handle.

Int. 27. Then I understand you to mean that the chips and shavings produced by the knives were the result of the scrap-
159 ing by the knives rather than by the proper cutting by the knives?

That is my meaning.

Int. 28. About in what year was it that the Grand De Tour Plow Works or company ceased to use said Grand De Tour machine for the purpose of dressing the necks of plow handles, or practically so ceased to use said machine?

The Grand De Tour Plow Company moved to Dixon, if my memory serves me right, in 1869, and I don't think they used it over two or three years after the company moved to Dixon. They used it to finish up the material they had on hand.

Int. 29. Then I understand that the company practically ceased to use said machine some 18 or 19 years ago?

To the best of my knowledge that's the facts of the case.

Int. 30. Your attention is now called to this machine which I now show you constituting "Exhibit A" attached to the deposition of John D. Wiley. You will state whether you ever saw this machine before, and also saw the same used in dressing the neck of plow handles?

I did.

Int. 31. State whether or not, in view of your knowledge of the working qualities of the Grand De Tour machine, as you have testified to, and in view of your observation of the working qualities of the machine marked "Exhibit A," you consider there is a difference, and a material and substantial difference between the working qualities and operation and practical and profitable results of the same?

There is a material and substantial difference.

Int. 32. Which of the two machines, in your opinion, based upon your knowledge as above set forth, produced the most perfect work, and constitute the most profitable machine to the company or party working the same? State according to your views.

(Objected to as immaterial.)

To all of said questions the machine called "Exhibit A" is the machine that does the proper work, in my estimation.

Int. 33. Your attention is called to this plow handle, and the necked portion of the same. I will ask you if said handle and the necked portion thereof was dressed in your presence upon said machine marked "Exhibit A?"

(Objected to as incompetent.)

Handle referred to in interrogatory 33 offered in evidence and marked Complainant's Exhibit "C."

160 It was.

Int. 34. State whether any finish whatever has been applied to the same since it was passed over the machine, and also whether it is in the same condition it was when it left the machine?

(Same objection.)

Said handle is in the exact condition as it was when it left the machine.

Int. 35. You may describe the particular character of the wood constituting the neck portion of said handle.

Said handle is very hard and what we call, as workmen, stringy, very hard to dress smooth, tough in its nature, hard handle for any machine to cut.

Int. 36. You may state whether or not, in view of your knowledge of the working qualities of the Grand De Tour machine, it would have been at all practicable to have dressed said handle, or one of like character, upon said machine, at a time it was in good repair for working?

I think not.

Int. 37. I would ask you if any attempt to dress that handle, or one like it, on said machine would have resulted substantially in a failure?

(Objected to as immaterial.)

To the best of my ability, I think it would.

Int. 38. Do you regard yourself as having correct knowledge of the character of the work done on said machine, from the time you began to work for the company, up to the time the company ceased to use the same?

To the best of my ability, I do claim to have said knowledge.

Cross-Examination.

Int. 39. In answer to Int. 5 you speak of having used the Grand De Tour cutter-head once by direction of your foreman. When was that?

I couldn't say what year.

Int. 40. Was that the first time you ever attempted to operate it?

Practically the first time. Had held handles over the head after that time.

Int. 41. How many times have you worked on that machine?

Couldn't give a correct answer to that how many times.

Int. 42. State approximately.

Practically never tried that machine but once. Have held handles over it several times since that date.

Int. 43. At the time you tried to operate it, were the knives
161 sharp and the openings in front of the knives free from chips and shavings?

They were always free at every time you placed a handle upon it. Then would clog.

Int. 44. You mean to be understood as saying, that as soon as a handle was removed from the groove, the openings in front the knives were immediately relieved from any chips or shavings that might have clogged there?

That's exactly my meaning.

Int. 45. Well, did the chips and shavings that you say had accumulated in the openings in front of the knives rise up when the handle was removed and come out over the edge of the head? If not, how were they discharged?

Said chips and shavings would become compact, and that would throw the handle entirely out of the groove, the chips would be thrown out promiscously all over every direction.

Int. 46. And quite a proportion of such chips and shavings were discharged side-ways from said openings, and also downward toward the shaft on which the head was mounted, would they not?

A certain portion did when the handle was first applied to the groove, then it became compact and when the compact mass was discharged they were thrown out promisciously at the sides as stated.

Int. 47. How much of your time was spent in the observations of the workings of the machine in question?

I ran a boring machine, almost daily, for many years, within from four to six feet of said machine, received handles from that machine to bore for upper round.

Int. 48. You were a boy, were you not, at the time you attempted to operate the machine as stated in answer to interrogatory 5?

I might have been 20 years old or 21 or 22, could not give the exact date or my exact age at the time I tried that machine.

Int. 49. What was the name of the man whose business it was to regularly run that machine at the time you attended the boring machine?

Charles Mahlon, he is now dead.

Int. 50. Can you swear that that the Grand De Tour cutter-head was never operated continuously over an entire day?

To the best of my ability, I think it never was run one full day in the Grand De Tour shop, and have good reasons for thinking so.

Int. 51. State your reasons.

In the first place I candidly think no man could endure running that machine one whole day, and other reasons there were never handles enough to keep it agoing a whole day. It was run at spurted times.

Int. 52. As a matter of fact, a great many thousand handles were dressed or shaped on that head, were there not?

They were if you see fit to call them dressed. They were dressed after a fashion.

Int. 53. Up to the present time, have you ever seen a plow handle necking machine which left the necks of plow handles in such condition, that said plow handles were used without having something further done to them in the way of dressing or finishing?

I have, except sandpaper belting.

162 Int. 54. Why did your company discontinue the use of the head referred to?

As I always understood, it was because they could buy them cheaper than they could bend and neck them.

Int. 55. (*De bene esse.*) Is the wood of which the handle you have produced such as is ordinarily used for plow handles?

Many of them is of the same nature.

Int. 56. (*De bene esse.*) And was it of wood of that character that the majority of your plow handles were made when using the Grand De Tour cutter-head?

Not majority, but many of the same nature.

Int. 57. (*De bene esse.*) When did you see Exhibit "A" operated, by whom was it operated and what amount of work was done upon it?

From 4 to 5 weeks ago I saw it operated by Ralph Caverly. I should judge that from ten to fifteen handles were run over the machine.

Int. 58. (*De bene esse.*) All of the han

the machine were (point) with a little rib on top is seen in the handle produced by you?

They was.

Int. 59. (*De bene esse.*) Then it could those handles that they were sufficiently smooth to go directly to the paint shop without further smoothing or finishing?

To my judgment, not without being run over a stiff sandpaper belt.

Int. 60. (*De bene esse.*) As I understand it, this "Exhibit

A" was not in regular use in any factory at the time that you saw it, but was rigged up for the occasion by Ralph Caverly for the special benefit of yourself and several other spectators. Am I right?

Whether it was rigged up for our special benefit or not, and as to his motive, I could not say. I was called upon personally to see his machine work, he knowing in some way that I had been connected with the old machine. It was not in regular use in the shop where I saw it working.

Re-Direct.

Int. 61. You have stated, in cross-examination, in answer to interrogatory 53, that you have seen a plow handle necking
163 machine which left the handles in such condition that the same are used without having something further done to them in the way of dressing or finishing, except sandpaper belting. You will now state what machine it is you referred to in your said answer?

"Exhibit A" is the only machine that I ever saw for dressing plow handles, except the Grand De Tour machine, and "Exhibit A" turns out the work sufficiently smooth to require only sandpaper belting, and is the machine I referred to in my answer to said interrogatory 53.

Int. 62. You may state whether or not, in point of fact, you did observe the running qualities and operation of said Grand De Tour machine so long as you were with the company, and they used said machine?

I did.

WILLIAM EAMAN MEYERS.

Subscribed and sworn to before me, this ninth day of July, A. D. 1891.

JAMES F. SANFORD,
[SEAL] *Notary Public.*

164 JOHN COOL, a witness produced on behalf of the complainant in rebuttal, who first being duly sworn, desposes and says as follows:

Int. 1. State your name, age, occupation, and place of residence?

John Cool, age 60 years, farming, Grand De Tour, Illinois.

Int. 2. State whether or not you worked for the Grand De Tour Plow Works for a number of years, and if so, state the years constituting the period in which you so worked.

Yes sir; I think it was about 1862 or 1863, I commenced working and worked about 14 to 15 years.

Int. 3. What kind of work did you perform for said company?

I believe I ran every machine in the wood department. I dressed handles and beams-wooded plows.

Int. 4. State whether you ever used this machine marked "Defendant's Exhibit Grand De Tour Cutter-Head?"

That looks like the machine that we had in the Grand De Tour shop. This don't look just natural to me, not the outside where it is hollowed out. It may be a machine made by Mr. Wiley since.

Int. 5. I will ask you if the machine which you used had knives in the sides adjusted like this machine and a groove in it like this?

(Objected to as leading.)

Yes sir.

Int. 6. I understood you to say, that you used a machine for the company like that, you may now state what was the particular character of the work which the machine did and performed in dressing plow handles, if any such were dressed.

To the best of my knowledge the machine was like that. Really it did not dress them, it merely put them in a form for dressing.

Int. 7. Through what process did you put the handles, after they had been passed over the machine, in the process of finishing them ready for use?

Draw-shave, spoke-shave, rasp and sandpaper.

Int. 8. State the particular kind of work which you did in dressing the plow handles, if dressing the same was a part of your work, and state generally what you did in and about such work.

Whoever dressed handles after they left the necking machine
165 first, champared them and then finished them ready for the plow.

Int. 9. State whether or not you performed any part of that work?

I did all of it.

Int. 10. After the handles had been passed over the machine you then put them through the process of finishing them, as you have described, did you not?

Yes sir.

Int. 11. You may state whether or not you ever saw this machine which I now show you, and also ever saw it work in dressing the neck of plow handles, the machine being marked

"Exhibit A" and attached to the deposition of John D. Wiley taken herein?

I did, or one like it.

Int. 12. State whether or not you observed the character of the work done and performed upon said machine?

I did.

Int. 13. State whether or not, in view of your knowledge of the working of the Grand De Tour machine and of this machine just shown you, in your opinion, there is any difference with respect to the perfection of the work done?

Just as much as between a jack plane and a smoothing plane.

Int. 14. State whether or not, in view of your experience in the work of dressing the neck of plow handles, in your opinion, the difference between the working qualities of said machine is a material and substantial difference?

I should say it was.

Int. 15. Which one then of said two machines, in your opinion, performed the most perfect and most profitable work for any company using the same?

(Objected to as immaterial and as irrelevant.)

I should say the machine marked "Exhibit A."

Cross-Examination.

Int. 1. About how much of your time was spent in operating the "Exhibit Grand De Tour Cutter-Head," or a machine like it?

I never run it very much, but was within ten feet of it with most of the machines I did run.

Int. 2. Did you ever work it one whole day?

Not at a time.

Int. 3. Did you ever see anybody work it one whole day at a time?

166 No sir, not without stopping. Never had handles enough to keep it running a day at a time.

Int. 4. If handles had been supplied a man could have put in a full working day operating the machine, couldn't he?

Yes, I think so.

Int. 5. There would have been no difficulty in his so running it day after day would there, provided the handles had been supplied him?

I don't think there would, it would have been rather hard work for him.

Int 6. You are a practical mechanic, I take it, are you not?

I don't consider myself so.

Int. 7. But you have had many years experience in running wood-working machines, have you not?

About 14, I think, to the best of my knowledge.

Int. 8. What is your best recollection as to the proportion of the handles operated on said head being spoiled by reason of being run on the head?

I don't think there was a great many spoiled, but left in a bad shape so that they had to use a draw-shave to put them in shape.

Int. 9. Do you ascribe that trouble to the knives on the head being not put in a proper manner?

I do to a great measure.

Int. 10. In your opinion, could a workman have remedied that defect by readjusting the knives to a more proper angle or changed the head so that the knives would be better placed for the work without much difficulty?

Question objected to for it don't appear that the witness is a skilled mechanic or an expert.

I think that this machine "Exhibit A" would have saved the use of the draw-shave on a good many handles. I think these knives in the Grand De Tour head never stood in a shape to cut smooth, seemed to do more scraping than cutting.

Int. 11. The wood was not up to the standard then because the knives were not set at a proper angle, is that right?

(Same objection.)

I should consider so.

Int. 12. The machine was considered a successful machine, however, was it not?

167 That I do not know; it was better than a draw-shave to form the handles in shape.

Int. 13. (*De bene esse.*) When did you see "Exhibit A" worked?

It seems to me it is about four weeks ago to the best of my knowledge.

Int. 14. (*De bene esse.*) State where and who was present?

Down in Mr. Brink & Deeter's planing mill, Mr. Wiley, too, Mr. Meyers, the gentleman that brought the machine, Caverly, I think.

Int. 15. (*De bene esse.*) How long was the machine operated, who operated, and what work and what amount of work was

done?

Long enough to neck eight or ten handles. Mr. Caverly operated the machine.

Int. 16. That only took a few minutes, of course, to dress these 8 or 10 handles?

Ans. Yes sir.

Int. 17. (*De bene esse.*) Did those handles, after being dressed, present a smooth, finished appearance ready to be painted?

They did with the exception of the seam at the top and bottom.

Int. 18. (*De bene esse.*) That seam that you refer to was a raised projection or rib on the handle, was it not?

Yes sir, it wasn't cut.

Int. 19. (*De bene esse.*) Where were the handles that were dressed obtained, and were they first-class pieces of wood?

Do not know where they were got, some were straight grained and some were cross-grained. I noticed the neck.

Int. 20. (*De bene esse.*) Did Mr. Caverly use a cross-bar in front of the cutter-head upon which he rested the straight portion of the handles while the neck was in the groove of the head?

I did not see any. Do not think he had any.

JOHN COOL.

Subscribed and sworn to before me this ninth day of July, A. D. 1891.

JAMES F. SANFORD,
Notary Public.

[SEAL]

Deposition of John W. Bartlett.

170 JOHN W. BARTLETT, witness for complainant, being first duly sworn, deposes and says, in answer to interrogatories to him propounded by counsel for complainant, as follows to-wit:

Int. 1. You will please state if you are the same John W. Bartlett that testified before in this cause?

Ans. Yes sir.

Int. 2. You may state whether your place of residence is still at Moline, Ills.

Ans. At Moline, Ills., 1926 3rd Ave.

Int. 3. State whether or not you have for many years had practical experience as master mechanic and machinist in the exercise of your calling?

Ans. I have.

Int. 4. You consider yourself as having both a theoretical as well as practical knowledge of mechanics, do you not?

Ans. Yes sir.

Int. 5. State whether or not you have been accustomed in
171 your calling, to compare the construction of machinery with written descriptions and drawings, both in letters patent and otherwise, and also to construct machines, from such written or printed descriptions and drawings?

Ans. I have.

Int. 6. I will now show you a patent office copy of the letters patent, set forth in the bill of complaint in this cause, and being numbered 303,116. You will please carefully examine the same, said copy being made a part of the interrogatory by reference thereto, after having examined the same carefully, I will call your attention to that part of the specifications thereof commencing on line 96, and closing on line 103, and after having examined the same, state whether or not in the construction of the machine, or cuttter-head, in the manner described in the specifications and drawings, the annexed said patent it is contemplated therein, at the option of the person constructing the same, to use flat cutter knives, instead of curved knives. And for the purpose of answering this interrogatory more clearly your attention is called to figures 1, 2, 3, 4 and 5 of said drawings annexed to patent?

Ans. Flat knives can be so employed.

Int. 7. State whether or not said specifications and drawings also contemplate the use of flat inclined beds, to secure such flat knives, instead of curved beds for curved knives?

Ans. Yes sir.

Int. 8. State whether or not, in case flat knives and flat inclined beds are thus used, in the construction of the machine, there would necessarily be more or less a corresponding change in the form or shape of the openings through which such inclined flat beds and flat knives secured thereon, enter the inner plane or surface of the grooves, and causing the crescent-like shape of the openings as illustrated in fig. 2 to assume an elongated shape of about the width of the knives, with the sides of such openings, bounded by parallel and less curved lines?

(Objected to as incompetent, immaterial, leading and not calling for proper rebuttal testimony.)

Ans. It certainly would.

Int. 9. Suppose a machine should be constructed by having the outer sides of the disc diminished to the fractional part of the apparent thickness of the discs, illustrated in fig. 2 and in said
172 drawings, and also having inclined beds for knives, constructed upon the outer sides of the disc near their periphry

and of the general shape and appearance of lugs, and also having recesses or openings for the easy discharge of chips and shavings on the sides opposite such inclined beds, diminished in a manner corresponding to the diminution of the outer sides of the disks.

State whether or not such diminution of the outer sides of the disks and the depths of the recesses or openings for the discharge of chips and shavings and the lug-like shape of the inclined beds caused by such diminution constitute any departure from the principles of the machine set forth in the description thereof in such specifications and drawings.

Ans. No sir, I don't think it does.

Int. 10. Your attention is further called to figs. 2 & 3 of the drawings, and state whether or not you observe a particular angle or inclination of the knife-beds, as shown in figs. 2 and 3, and especially in fig. 3. State as nearly as you are able, about the degree of inclination of said knife-beds, please measure the same if necessary.

Ans. In my opinion they are at an angle of 45 deg.

Int. 11. State what is the degree of inclination of knife-beds, in carpenter's planes, as a general and almost uniform rule.

Ans. 45 deg.

Int. 12. State what you have observed, as almost a uniform truth in mechanical experience where wood-cutting and wood-dressing knives of all varieties including rotary cutting and planing, and wood-dressing knives, with respect to the particular degree of inclination in such knives, are adjusted to meet the material to be dressed.

Ans. Well, I have discovered from practical experience, that knives sat on a flatter angle than 45 deg. are inclined to ride over the wood, when the knives become a little dull, and it is very difficult to hold them down to the cut much more than an angle of 45 deg., and if set on an angle steeper than 45 deg., they are inclined to scrape and requires more power to drive them, 173 and become dull sooner than on the proper angle.

Int. 13. State whether or not you understand your own experience and observation to be the common experience in mechanism generally, with respect to the same subject matter.

Ans. I have so understood it.

Int. 14. State whether or not as a general rule in practical mechanism, in order to obtain the best mechanical result, such knives for dressing wood must be adjusted upon an inclination of about the deg. which you have above mentioned, namely, 45 deg.

Ans. Yes sir.

Int. 15. State whether or not you have observed, in practi-

cal mechanism, with respect to the adjustment of such dressing knives in order to obtain the best results, that the cutting edges of such knives should come in contact with the material to be dressed as squarely as possible?

Ans. Yes sir.

Int. 16. State in view of your mechanical experience how the best results are obtained, by the adjustment of the dressing knives to the material?

Ans. Well, as square as possible, across the timber, and at an angle of about 45 deg.

Int. 17. State whether or not the adjustment of the knives, as you have stated, causes or brings the whole cutting edge of such knives to meet the material at the same point of time, as nearly as possible.

Ans. Yes sir.

Int. 18. State whether or not your experience as you have stated, is the common experience in wood dressing mechanism?

Ans. I think it is.

Int. 19. From your inspection of said specifications and drawings, relating to the construction of the machine therein described, state whether or not, in your opinion, such machine embodies in its construction all the essential principles mentioned in the several interrogatories and answers above set forth, in order to procure the best practical results in its operation?

Ans. I think it does.

Int. 20. Your attention is now called to the machine or cutter-head, marked Complainant's Exhibit "A," and of date July 9, 1891. You will please examine the same and state whether 174 or not you ever saw the same before?

(Objection is made to the int. as incompetent and for calling for testimony not properly in rebuttal of any testimony on behalf of defendant.)

(It is stipulated that the above objection shall stand as an objection to all interrogatories and answers, relating to said "Exhibit A" whether asked of and answered by this or any other witness produced by complainant. This agreement is to save repetition of the objection.)

Ans. I have.

Int. 21. You may state who constructed or superintended the construction of the same?

Ans. I superintended the construction of the machine.

Int. 22. State whether or not this machine, viz: Exhibit

"A," in its mechanical construction in all of its several component parts and as a whole is, in your opinion, in full harmony as to every material and substantial point of view, with the mechanism and principles of the machine described in said specifications and drawings?

(Objected to as leading.)

Ans. I think it is in principle substantially the same.

Int. 23. State whether or not you observed that this machine, viz: Exhibit "A" is constructed with 2 disks secured together with bolts, and made of iron?

Ans. It is.

Int. 24. Your attention is now called to the particular construction of portions or certain component parts of this said machine, viz: to the beds upon which the knives are secured and also to the thickness of the disks or the diminished thickness of the outer sides of the disks, as compared to the thickness of the disks in said drawing annexed to the specifications, and also to the diminished depths of the recesses or openings for the discharge of chips and shavings; as also compared with the recesses or openings illustrated in said drawings, I will ask you if you observe such differences with respect to the thickness of the outer sides of the disks, and with respect to the depth of the recesses or
175 openings for the discharge of chips and shavings.

(Objected to as leading.)

The foregoing interrogatory is withdrawn.

Int. 25. You may state whether or not, you observe any differences or apparent differences, in the thickness of the outer sides of the disks, in the construction of the said machine, and the thickness or apparent thickness of the outer sides of the machine illustrated in said drawings, and if you do observe any such difference, state what it is.

Ans. There is a difference in the thickness, which would make no difference in the working principles of the machine.

Int. 26. Which of the 2 said machines have the thicker disks, especially the outer sides of said disks?

Ans. The machine illustrated in the drawings.

Int. 27. State how the beds are constructed in the machine illustrated in said drawings as showing the thickness of the sides in the illustrated machine?

Ans. Well, as near as I can explain it, the bed is cut through from the outer surface to the inner plane on an angle of

about 45 deg. on a right angle with the inner plane as near as possible.

Int. 28. State whether or not you mean to be understood that the whole surface of the beds are constructed by producing inclined planes into and through the outer sides of the disks?

Ans. Yes sir.

Int. 29. State whether or not you observe any difference in the depths of the recesses for the discharge of the chips between the said machine and the machine illustrated in said drawings?

Ans. I see a difference.

Int. 30. In which machine are the recesses the deeper?

Ans. In the illustrated machine.

Int. 31. What causes such differences in the depths of said recesses?

Ans. In cutting away the outer side of the head and recessing it.

176 Int. 32. State whether or not, in the illustrated machine, the recesses shown in fig. 2 and 3 would be, as to their depths, diminished in the exact ratio, after the diminution of the outer sides of the disks?

(Objected to as immaterial.)

Ans. Of course it would be.

Int. 32. Suppose in the machine illustrated by the drawings, the outer sides of the disks showing fig. 2 and 3, were diminished on thickness to one-half or one-fourth thereof, or to any similar fraction as to all that portion of said outer sides not constituting inclined beds of the knives, I will ask you what will be the result of such diminution with respect to the appearance of the knife-beds, as to shape and form?

Ans. The difference in the appearance would leave the knife-bed stand up prominent, and lighten the disk, similar to the machine in question.

Int. 33. State whether or not, according as I understand your previous answer, the differences between the appearance of the knife-beds constructed upon the said machine, as to its construction and the appearance of the knife-beds, constructed in the outer sides of the disks of the illustrated machine, is anything more than that which must, of necessity, exist by diminishing the dimensions of the outer sides of the disks in this said machine?

Ans. I don't think it is.

Int. 34. State whether or not the differences in the depths of the recesses in this said machine and those in the illustrated ma-

chine are anything more than that which must of necessity occur by the diminution of the outer sides of the disks of this machine?

Ans. No sir.

Int. 35. State whether or not, in your opinion, the differences mentioned in the last two interrogatories and answers thereto, constitute any departure from the mechanism and principles described in said drawings and specifications?

Ans. I think not.

Int. 36. You may state what, in fact, if you know, is the angularity of the knives and the knife-beds, to the inner planes and sides of the groove in this machine being shown to you?

177 Ans. About 45 deg.

Int. 37. State in what manner the cutting edges of the knives meet the inner plane and surface of the groove and the material being dressed?

Ans. Very near a right angle with the grain of the timber and an angle of 45 deg. with the inner plane.

Int. 38. Do you mean then to be understood by your previous answer, that the knives approach the inner surface and sides of the grooves and the material at an angle of about 45 deg. and that the line of the cutting edges of the knives extend across the material at right angles with the line of the axis of the material as nearly as possible?

(Objected to as leading.)

Ans. That is the way I wish to be understood.

Int. 39. State whether or not in view of that position of the knives to the material every part of the line of the cutting edges of the knives meet the material as nearly as possible at the same angle and at the same point of time as nearly as possible?

(Objected to same as above.)

Ans. Yes sir, it does.

Int. 40. Your attention is called to the recesses or openings passing from the inner plane and sides of the groove, and above the upper planes of the knives, through to the outer sides of the disks, state what purpose such recesses and openings effect?

Ans. They provide a free passage for the shavings and chips from the knife.

Int. 41. State whether or not there is any material or substantial difference, in your opinion, between the recesses or openings constructed in this machine being shown you & the recesses

or openings in the machine illustrated in said drawings and specifications?

Ans. I don't think there is in the working of the machine.

Int. 42. State whether or not such difference is simply necessitated, in your opinion, by reason of the use of flat knives in the construction of the machine being shown you, instead of using curved knives?

(Objected to as leading.)

Ans. I don't understand the question, of course with a curved 178 knife, a different form is required than with a flat knife.

Int. 42. Then I understand you to say, that the difference in the recesses or openings as to shape and form is simply the result of constructing this said machine by using flat knives instead of curved?

Ans. Yes sir, that's right.

Int. 44. You may state whether or not, in your opinion, the construction of this machine, in view of your inspection of said specifications and drawings, and the description of the machine therein described, and also in view of your knowledge of the construction of this said machine is in all material and substantial respects constructed strictly in accordance with the description of the machine set forth in said drawings and specifications?

Ans. It is in the substantial workings of the machine.

Int. 45. You may state whether or not, in your opinion, this machine being shown you, in its component parts and as a whole, is constructed according to the principles set forth in said specifications, and the claims annexed to said specifications and letters patent?

Ans. Yes sir.

Int. 46. Your attention is now called to that portion of said specifications commencing on the 45th line after 2nd page, and ending on the 68th line of said page, and you will please carefully examine the portions of the specifications thus indicated, and I will now call your special attention to the following part thereof, to-wit:

"The openings where the cutters enter the curve in the disks "being narrow, the metal surrounding such openings resist the "progress of the cutters beyond the distance to which the cutters "extend beyond the curve, and by increasing or diminishing this "distance, they may be made deeper or shallower, and the char-"acter of the work done, varied." You may state whether or not the adjustment of the knives in this machine being shown you

to the groove and the inner plane and surface of the groove through the openings from the outer sides of the disks, into the plane and sides of the groove is, in your opinion, in strict conformity to the language of the specifications last above
179 quoted?

Ans. Yes sir, I think it is.

Int. 47. State whether or not the knives as adjusted to the groove in this said machine are protected as to the outer edges thereof from excessive cutting of the material by reason of the metal surrounding the openings and surrounding the edges of the knives, through the whole extent of the cutting edges thereof?

(Objected to as leading.)

Ans. Well, the metal prevents the excessive cutting by the adjustment of the bits, to suit the work being done.

Int. 48. State whether or not, in your opinion, the adjustment of the knives in this said machine to the grooves therein, and particularly those portions of the knives being adjusted to the lower or central part of said groove, so as to be protected by the surrounding metal and having a space at the lower ends of the openings between the surrounding metal, whereby or rather wherein the lower ends and points of knives may be adjusted so as to leave such space between the points of the knives as the operator may desire, in order to procure the best results, is in conformity and in accordance with the description of the machine set forth in said specifications?

(Objected to as leading and attention is here called more particularly to this "Exhibit A" which has been introduced in evidence as representing the machine of the patent; after the conclusion of defendant's testimony which Exhibit "A" shows in many particulars important departures from the construction shown and described with patent, especially in the features referred to in the last interrogatory.)

Ans. In my opinion they are. I made this machine according to my judgment according to the specifications and drawings as I understood them.

Int. 49. Then I understand you to say that the adjustment of the knives in the said machine, and to the inner sides and surface of the groove, and to the lower and central part of the groove, having a space in which to adjust the knives and the points of the knives, so as to leave a space between such points according
180 to the option of the operator, and with a view of procuring

the best results as to fineness and smoothness of work or as to coarseness and roughness of work just as the operator may desire are strictly in accordance with the recitals of said specifications and claims thereto annexed?

(Objected to as leading and protest is made on behalf of defendant as to fully two-thirds of this testimony being given by complainant's counsel in the form of grossly leading questions.)

Ans. It is according to my judgment made in accordance with the specifications and drawings.

Int. 50. Your attention is now called to that part of the deposition of Chas. O. Mason: "On the 27th day of January, 1891, on the part of the defendant, to-wit: "Int. 7. Please state whether or not, in your opinion, the machine shown and described in said Caverly patent is a practical machine, and give your reasons for any opinions you may have." Ans. As shown by the drawings and described by the specifications, I do not think it is a practical machine, for the purposes intended, for the simple reason there is no practical stop to the working of the knives on the wood being operated upon, constructed as shown and described, if it did not depend upon the skill of the operator the wood would be continually cut away in such a manner that the handles so operated upon would be useless."

You may state whether or not, in your opinion, the knives and the points of the knives are so adjusted in this machine "Exhibit A" and into the groove, and the central part of the groove thereof, as to produce or furnish or allow a practical stopping to the working of the knives on the material being dressed beyond a point desired by the operator. State according to your knowledge of the machine and its construction.

(Defendant's counsel objects to calling for a comparison of the working qualities of two machines of such different constructions as the machine of the Caverly patent, and the machine "Exhibit A," as being incompetent and for the further reasons above assigned.

181 Ans. The adjustment of the knives in the machine "Exhibit A" are easily adjusted by the operator to allow any space desired, between the inner points of the knives to prevent the cutting away of the wood, as much or little as desired.

Int. 51. Then, as I understand you to say and mean, that the machine "Exhibit A" is so constructed as to the adjustment

of the points of the knives in the center of the groove so as to furnish a complete stoppage of the material at bottom of the groove so as to prevent any possible excessive cutting of the knives beyond that desired by the operator?

Ans. Yes, sir; that is what I mean by what I said.

Int. 52. You may state whether or not you ever saw this machine "Exhibit A" in practical operation dressing the crooked neck or portion of plow handles, said handles being bent in the rough and placed upon the machine in the rough?

Ans. I did.

Int. 53. You may state, as near as you can judge or calculate how many revolutions per minute said machine was running at the time?

Ans. I think between six and eight hundred.

Int. 54. You may state the character of the work said machine performed?

Ans. The work was good, better than the work done by Deere & Company's machine when I saw it last.

Int. 55. When was it you saw Deere & Company's machine run?

Ans. The day my previous testimony was taken. That's the only time I ever saw it.

Int. 56. State whether or not the workings of said machine on that occasion presented a practical and absolute demonstration of the practicability of said machine, and as demonstrating positively that the material being dressed was furnished with a solid stop on which to rest by a small seam or bead-like portion of the upper arc, and under arc of the neck of the handle passing between the points of the knives to the width of about between the 16th & 32nd part of an inch.

182 (Objected to as leading.)

Ans. It did.

Examination of John W. Bartlett resumed.

Int. 57. I call your attention to that portion of said specifications commencing on the 3rd line of 2nd page and ending in the 8th line thereof, to-wit: "I have found for general purposes six "knives, 3 in each half of the head, the knives thereof on one "side, in their appearance on the concave with those on the "other, is a very satisfactory and efficient arrangement."

State whether or not, in your opinion, it is contemplated by said specifications that to have the knives alternate in the groove

is a very satisfactory and efficient arrangement at the option of the operator?

Ans. It is so contemplated in said specifications.

Int. 58. State the particular position and adjustment of the cutter knives to the inner surface of the groove and especially to the lower and central parts of the groove, and also especially with respect to the ends and points of the knives?

Ans. The knives would be in relation to the groove the same as they are when opposite to each other.

Int. 59. In case the knives alternate, state the position of the ends and points of the knives with respect to the metal of the opposite disk at the lower central part of the groove, whether said ends and points of the knives would come in contact with the metal of the opposite disk? State according to your understanding.

Ans. They, the knives, don't come any nearer the opposite
183 disk than when they stand opposite to each other. The position is precisely the same as when they stand opposite to each other with regard to the center of the disks or groove.

Int. 60. State whether or not the ends and points of the knives approach the metal of the opposite disk so as to leave a small space between the points and ends of the knives and the metal of the opposite disk, the width of the space being according to the desires and purposes of the operator.

(Objected to as leading and also because it does not appear whether the question refers to the patent drawing Exhibit "A.")

Ans. They do not, as I understand it.

Int. 61. In case the knives alternate, and in case the knives are adjusted to the groove and to the central part of the groove according to the directions in the specifications, and as therein contemplated, state whether or not in the practical operation of dressing the neck of plow handles there would be any practical stop for the material to rest upon so as to prevent excessive cutting of the material?

Ans. I think there would if the knives are properly adjusted.

Int. 62. State what would constitute that stop or stoppage of the material, whether the same is the metal of the opposite disk rising slightly above the point of the knives or otherwise. Please explain.

Ans. By setting the inner corner of the knives a fraction from the center of the groove, on each side of the groove, will

constitute the stop the desired width. The space between the knives constitute the stop, and making no difference whether the knives alternating or are opposite each other.

Int. 63. You may state whether or not in view of your inspection of said specifications and the drawings annexed thereto, it is contemplated therein, both in the specifications and drawings, that the stop or stoppage of the material being dressed, in order to prevent excessive cutting thereof, is to be formed or created simply by the adjustment of the knives according to the
184 wishes of the operator by leaving a space between the knives. I mean between the points of the knives.

(Objected to as leading.)

Ans. It certainly was so contemplated.

Int. 64. State whether or not the particular width of the space may be of any fraction of an inch desired by the operator, whether the same be one-fourth of an inch, or one sixty-fourth of an inch, or a less fraction.

Ans. It can be any desired width by shaping the inner corner of the knife.

Int. 65. State whether as a matter of fact, in your experience, with the running operation of the machine described in the specifications and drawings, that such small fractional space between the points of the knives constitutes practically an absolute stoppage of the material, and thereby preventing excessive cutting of the same.

Ans. It does.

Int. 66. Your attention is called now to Int. 8th, and the answer thereto of the deposition of Chas. O. Nason, above referred to: "Please state wherein the cutter-head made by the defend-"ant and on account of the use of which this suit is brought, differs "if at all from the cutter-head shown and described in said Caverly "patent, and state also what effect is produced by such changes? "Ans. In the heads the difference is simply that the heads "used by Deere & Co., have a space in the center between the "knives, the space being formed in the defendant's case with a "steel plate between the two halves of the cutter-head and not "allowing the knives to cut the center of the handle and leaving "the handle to rest on a circle that has no cutting edge forming a "rest for the handle to bear on, and in that way preventing any "deeper cut than is desired. I mean to be understood that that "part of the handle not desired to be cut away rests on the steel "plate between the halves of the cutter head." You may state

Deposition of John W. Bartlett.

whether or not, in your opinion, the a
815 plate between the disks according to
answer, and with a view of furnishing
to prevent excessive cutting thereof, is at
essary or even desirable in the use of the machine constructed according to the specifications and drawings and also claims annexed to said letters patent?

Ans. No, sir; I don't think it is necessary or desirable, as the stop is formed by the shaping of the inner corner of the knives, which leaves a space.

Int. 67. You mean, do you, that the specifications annexed to the letters patent and the drawings contemplated the formation of a practical stoppage of the material by leaving a space of some fractional width between the knives?

(Objected to as leading and as assuming more than is warranted by the language of the last answer.)

Ans. It certainly was contemplated in such specifications and drawings, it could not be otherwise.

Int. 68. State whether or not, in your opinion, by a proper adjustment of the cutter knives into the groove of the machine described in said letters patent and specifications and drawings annexed, it is entirely practicable and easy to dress the necks of plow handles on said machine, having so smooth and nice a finish thereon, as to be ready to send to the paint shop without further finishing.

Ans. Yes, sir; it can be done and easily done on the parts supplied to the cutters.

Int. 69. You mean, do you, by your last answer that such finish can be made upon the necks of the handles applied to the cutter knives as would fit them to go to the paint shop?

Ans. Yes sir.

Int. 70. State what kind of work you have seen done on this machine, Exhibit "A" heretofore shown you, as to the quality and finish of the work, please explain?

Ans. I have seen what you would call first-class work done on this machine.

Int. 71. State whether the necks of the plow handles dressed, which you refer, was of such finish as will fit them for the paint shop, with the exception of the narrow bead on the lower and upper arcs of the necks, please explain?

186 (Objected to as leading.)

Ans. They were smoother than hundreds of handles that I

constitute the stop the desired width. The space between the knives constitute the stop, and making no difference whether the knives alternating or are opposite each other.

Int. 63. You may state whether or not in view of your inspection of said specifications and the drawings annexed thereto, it is contemplated therein, both in the specifications and drawings, that the stop or stoppage of the material being dressed, in order to prevent excessive cutting thereof, is to be formed or created simply by the adjustment of the knives according to the
184 wishes of the operator by leaving a space between the knives. I mean between the points of the knives.

(Objected to as leading.)

Ans. It certainly was so contemplated.

Int. 64. State whether or not the particular width of the space may be of any fraction of an inch desired by the operator, whether the same be one-fourth of an inch, or one sixty-fourth of an inch, or a less fraction.

Ans. It can be any desired width by shaping the inner corner of the knife.

Int. 65. State whether as a matter of fact, in your experience, with the running operation of the machine described in the specifications and drawings, that such small fractional space between the points of the knives constitutes practically an absolute stoppage of the material, and thereby preventing excessive cutting of the same.

Ans. It does.

Int. 66. Your attention is called now to Int. 8th, and the answer thereto of the deposition of Chas. O. Nason, above referred to: "Please state wherein the cutter-head made by the defend-"ant and on account of the use of which this suit is brought, differs "if at all from the cutter-head shown and described in said Caverly "patent, and state also what effect is produced by such changes? "Ans. In the heads the difference is simply that the heads "used by Deere & Co., have a space in the center between the "knives, the space being formed in the defendant's case with a "steel plate between the two halves of the cutter-head and not "allowing the knives to cut the center of the handle and leaving "the handle to rest on a circle that has no cutting edge forming a "rest for the handle to bear on, and in that way preventing any "deeper cut than is desired. I mean to be understood that that "part of the handle not desired to be cut away rests on the steel "plate between the halves of the cutter head." You may state

whether or not, in your opinion, the adjustment of any steel
815 plate between the disks according to the description in said answer, and with a view of furnishing a stop for the material to prevent excessive cutting thereof, is at all in any manner necessary or even desirable in the use of the machine constructed according to the specifications and drawings and also claims annexed to said letters patent?

Ans. No, sir; I don't think it is necessary or desirable, as the stop is formed by the shaping of the inner corner of the knives, which leaves a space.

Int. 67. You mean, do you, that the specifications annexed to the letters patent and the drawings contemplated the formation of a practical stoppage of the material by leaving a space of some fractional width between the knives?

(Objected to as leading and as assuming more than is warranted by the language of the last answer.)

Ans. It certainly was contemplated in such specifications and drawings, it could not be otherwise.

Int. 68. State whether or not, in your opinion, by a proper adjustment of the cutter knives into the groove of the machine described in said letters patent and specifications and drawings annexed, it is entirely practicable and easy to dress the necks of plow handles on said machine, having so smooth and nice a finish thereon, as to be ready to send to the paint shop without further finishing.

Ans. Yes, sir; it can be done and easily done on the parts supplied to the cutters.

Int. 69. You mean, do you, by your last answer that such finish can be made upon the necks of the handles applied to the cutter knives as would fit them to go to the paint shop?

Ans. Yes sir.

Int. 70. State what kind of work you have seen done on this machine, Exhibit "A" heretofore shown you, as to the quality and finish of the work, please explain?

Ans. I have seen what you would call first-class work done on this machine.

Int. 71. State whether the necks of the plow handles dressed, which you refer, was of such finish as will fit them for the paint shop, with the exception of the narrow bead on the lower and upper arcs of the necks, please explain?

186 (Objected to as leading.)

Ans. They were smoother than hundreds of handles that I

have seen go to the paint shop with the exception of the bead referred to.

Int. 72. State at what speed the machine was then running.

Ans. I should judge between 700 and 800 revolutions per minute.

Int. 73. What, in your opinion, would have been the effect on the finish of the handles if the machine had run or should have been made to run at a speed of about 2000 per minute?

Ans. It would have made a great deal finer finish, smoother.

Int. 74. Would such handles, except the bead referred to, be fairly ready for the paint shop?

Ans. Yes sir, I think they would.

Int. 75. State whether or not, in view of your knowledge and experience of this machine, "Exhibit A" that the same, by a slight and easy adjustment of the points of the knives and by a speed of 200 revolutions per minute can be made and will, in fact, accomplish the work of dressing the necks of handles with such fine finish as to be ready for the paint shop, and having a bead upon the lower and upper arc of the neck of such narrow character as to be brushed off by the motion of the hand, having a slight scrap of sandpaper in the hand, thereby presenting a handle entirely ready for the paint shop.

Ans. Yes, sir: it can be done by a skillful operator.

Int. 76. State whether or not any operator of ordinary intelligence might and would, with a very little experience in handling the material and applying the same to the machine, easily and quickly acquire such skill in the operation as to turn out handles ready for the paint shop?

Ans. I don't think it would take very long experience to do it, with the necessary instructions.

Int. 77. State whether or not you have seen the machine used by Deere & Co., and which is complained of in this cause, in actual operation dressing handles?

Ans. I have.

Int. 78. State whether or not you observed the character and finish of said handles so dressed on said machine. I mean the neck portion thereof?

Ans. I did.

Int. 79. State what was the character of the finish on said
187 handles so dressed?

Ans. Rather rough, with a bead on the upper and lower arcs of the handles.

Int. 80. About what width was said beads?

Ans. I think about the 8th of an inch.

Int. 81. State, in your judgment, the cause of the roughness of the handles and the thickness of the beads? Depo John lett.

Ans. I think it was in the speed of the machine the depth of cut and the width of the space between the knives.

Int. 82. In view of your knowledge of the construction of the machine used by Deere & Co., state whether or not, in your opinion, it would be entirely practicable and easy to so adjust the knives to the groove of said machine so as to produce as fine a finish on the necks of plow handles as is contemplated in the machine described in the specifications and drawings in said letters patent.

(Objected to as immaterial.)

Ans. I don't think it could with the steel plate between the heads.

Int. 83. Please state the reasons for your foregoing answer.

Ans. Because it would leave the ribs too heavy on the inner and outer arcs of the handle.

Int. 84. Of what width would such ribs be, whether the width of the steel disk referred to or otherwise?

Ans. Would be in accordance with the thickness of the steel disk or wider.

Int. 85. State whether or not, in your opinion, said steel disk referred to is really of any practical benefit to the running operations of the machine used by Deere & Co., or to the running operations of a machine described in said specifications and drawings. Please explain.

Ans. I don't think it is of any material benefit, as there is a machine in operation that will do better work without it.

Int. 86. State whether you mean by "a machine" you refer to a machine constructed materially and substantially in all respects according to description of the machine in said specifications and drawings.

(Objected to as leading and immaterial.)

Ans. The machine referred to in its working principles is the same in relation to the cutting edges of the bits and the groove on the inner surface of the head. I mean the same as the machine set forth in the letters patent.

188 Int. 87. State whether or not, in your opinion, that the knives in the machine used by Deere & Co., might be easily adjusted so as to produce a fine finish on all those portions of the neck of the handle which is cut and dressed by the knives, and the

whole of the necks so dressed except that part constituting the bead, which bead being caused by the steel disk referred to.

(Same objection.)

Ans. Provided the heads are not worn out of shape and flattened between the knives the work on the cutting surface of the disks can be done as nicely and smoothly as on "the machine referred to."

Int. 88. You mean, do you, by the "machine referred to" that a machine constructed in accordance with the description in said letters patent.

(Same objection.)

Ans. Yes sir.

Int. 89. You may state whether or not you constructed, about the year 1885, a machine for the Moline Plow Co., in all material and substantial respects in accordance with the description of the machine described in said specifications and drawings.

(Same objection.)

Ans. I constructed a machine that the working principles of the machine, in my opinion, are substantially the same as the machine in question, not knowing that the Caverly machine was in existence.

Int. 90. State whether or not you refer to the machine said company are now using.

(Objected to for the reason that it has not been shown that the witness knows what machine is now in use by the Moline Plow Co.)

Ans. I referred to the machine they were using when I was in their shop. I have not been in their shop for two years. I mean that I referred to the machine they were using when I left.

Int. 91. How long, if at all, did you personally operate said machine?

(Objected to as immaterial.)

Ans. Well, I only run the machine a few minutes at a time after grinding, setting and adjusting the bits for the operator.

Int. 92. What position did you occupy with said Plow Co., at all times after you constructed said machine up to the time you left?

(Same objection.)

Ans. I was superintendent of the wood department when this
189 machine was constructed, and 2 or 3 years later, and then I took charge of the patters and planter department, from that time on.

Int. 93. State whether or not, during that time you personally kept said machine in running order, and looked after the proper adjustment of the knives to the groove therein and had knowledge of the character of the work done thereon. Please explain.

(Objected to as leading and immaterial.)

Ans. I did not take care of the machine all the time only occasionally I fitted it up and instructed the operators how to grind and adjust the bits and operate the machine, and I inspected the work every morning, before taken away from the finishers.

Int. 94. State what sort of finisher you refer to?

Ans. It is what is called the handle dresser, in the plow fitting room. A finisher is the man who planes and dresses the flat surfaces of the handle ready for putting them onto the plows.

Int. 95. State whether said finisher put any work on that part of the handle that had been applied to the machine, and if so, what?

Ans. The small ribs on the upper and lower arcs was dressed off by a file and sandpapered.

Int. 96. In what state of finish was the remaining portions of the neck of the handle after being passed over the machine?

Ans. The finish was what you would call a good finish, from any machine.

Int. 97. State whether or not such finish, except the beads you have already referred to on the upper and lower arcs, was of such a character as was fairly ready to go to the paint shop?

(Objected to as immaterial.)

Ans. Not always on account of the condition of the dullness and care of the cutter-heads.

Int. 98. State whether or not, so long as the cutter-head and the knives adjusted to the groove were in good, fair working order state whether or not the said necks of handles, except the beads already referred to, was sufficient to send the handles to the paint shop?

(Same objection.)

Ans. When the knives were in good order and properly adjusted and the handles truly bent and formed, the surface of the

handle dressed was sufficiently smooth to go to the paint
190 shop.

Int. 99. You speak of handles sufficiently bent and formed. State in what condition as to bending and form some portion of the handles would be in, which were required to be dressed?

(Same objection.)

Ans. In bending the necks of the handles over the forms which they are bent on, it will crimp the wood and buckle on the under side of the neck of the handle, which makes it very difficult to dress the handle perfectly smooth, over the buckle portion of the handle. There are a great many handles so crimped and buckled, and where the handles are neatly and smoothly bent, and straight grained, they will come from the machine smooth enough to go to the paint shop, except the ribs on the upper and under sides of the arcs.

Int. 100. What proportion of the buckled handles were there in the stock used?

Ans. It is very difficult to tell. It might be a tenth or a twelfth of the handles.

Int. 101. State whether or not, in this said machine which you constructed for the Moline Plow Co., there was any steel or iron disk, or any disk located between the disks of the cutter-head to serve as a stop for the material in dressing?

(Objected to as leading and immaterial.)

Ans. There was not.

Int. 102. State whether or not, in the practical operations of said machine, it was at all found necessary to have any such disk between the knives to serve as a stop for the material?

Ans. It was not.

Int. 103. State in what manner, in said machine, the stop to prevent excessive cutting of the wood, was produced?

Ans. By shaping the knife to cease cutting before it reaches the center of the disk at any given point desired by the operator.

Int. 104. State whether or not the practical result of such adjustment of the knives was to leave a narrow space between the points of the knives, or at the points of the knives, which was not covered by the cutting portion of the knives thereby producing beads on the upper and lower arcs of the neck. Please explain.

(Objected to as leading.)

Ans. The practical result, by leaving a space between the

knives, or shaping the knives to cease cutting before it reaches the center of the disk or corner of the knife.

191 Int. 105. State what work was done, if anything, in the way of finishing the necks of buckled plow handles dressed by the machine, to which you have referred.

Ans. It was done with a file and sandpaper by hand.

Int. 106. State whether such finishing by file and sandpaper was light and easy work, and of very small practical expense to the Co.?

(Same objection.)

Ans. Well, it was very light and easy work, and was of small practical expense to the Co.

Int. 107. State whether or not, in view of your knowledge of the workings of the machine described in the specifications and drawings of said letters patent, it would, in your opinion, be entirely practicable, to adjust the knives to the groove in such a manner as to produce fine work upon the neck of the plow handles, and fully prepared for the paint shop, and without having any bead whatever upon the lower and upper arc, and having a completely finished neck of handles ready for the paint shop, and if such is your opinion, please explain the mode of adjustment of such knives to produce such results.

Ans. My opinion is, that the machine can be made to work upon handles properly bent and finished sufficiently smooth all around to go to the paint shop, by grinding and fitting the knives properly to the circle of the head or groove, to cease cutting gradually as it approaches the center of the head or disk, until it runs out to nothing just before meeting the center of the disk.

In this manner it will dress the handles smooth without leaving a vein or rib on either side of the handle.

Int. 108. When the knives are adjusted in the manner in which you have described, state whether or not there will be the slightest difficulty with respect to excessive cutting of the material when the material was brought down solidly upon the center of the groove.

Ans. Not a particle of difficulty.

Int. 109. State whether or not, in your opinion, a machine constructed according to said specifications and drawings, and having the knives adjusted in the manner above stated, would constitute a machine entirely practical and highly beneficial, and

192 producing the best results?

Ans. I think it would.

Int. 110. Your attention is now called to this machine,

which I now show you, and being defendant's Exhibit "Grand De Tour Cutter-Head," and after having examined the same, state whether or not the same is constructed of one solid piece of iron having a groove in its periphery?

Ans. It is.

Int. 111. You will please notice the particular manner in which the knives are adjusted to the groove therein, and please explain how such knives are adjusted to and into the cutter-head, and to the groove?

Ans. They are adjusted by an upward and inward adjustment to the groove.

Int. 112. State whether or not you mean to be understood that the knives are adjusted into the outer sides of the cutter-head, latterly and longitudinally, and having the sides of the knives passing down into the sides of the head, at right angles, or nearly at right angles with the plane of the outer sides of the cutter-head?

(Objected to as leading, and complainant's counsel is respectfully requested to allow the witness from now on, to do the testifying himself.)

Ans. That is what I mean.

Int. 113. Please notice the form and character of the opening in the front of the knives, and passing down towards the central part of the machine, and please state, according to your opinion, what was the object, or supposed object, of having such opening in the construction of the machine, and please describe such opening as nearly as you can.

Ans. My opinion is that that opening was to allow the slivers to go down through as they were torn away by the scrapers from the timber, which, in my opinion, is too small to allow the slivers to pass out freely, and would be liable to clog up its operations.

Int. 114. Your attention is called to the particular position of the knives, with respect to the periphery of the cutter-head, and with respect to the inner surface of the groove, and state according to your best opinion, from inspection, what is the angle which said knives make with the inner sides and surface of said groove.

Ans. It would come in contact with the timber at an angle of about 85 deg.

193 Int. 115. State whether or not, upon the inspection of this machine, "Grand De Torer Cutter Head," with respect to the construction of all of its component parts including the adjustment of the knives, in the sides of the cutter-head and to the groove, and to the particular angularity which such knives sustain

to the inner sides of the groove, and to the material to be dressed thereon, and with respect to the openings in front of the knives passing from the inner surface of the groove, downward towards the central portion of the cutter-head, and with respect to the nature and character of the groove itself, with respect to the depth and form, and also in view of your knowledge of the particular construction of the machine described in the specifications and drawings, and claims annexed to said letters patent, and with respect to the particular adjustment of the knives of said last mentioned machine to the inner surface and sides of its groove, and with respect to the angularity at which such knives meet the inner surface of such groove, and with respect to the openings or recesses passing from the inner surface of said groove above the upper longitudinal surface of said knives, and outward and forming an easy channel for the discharge of chips and shavings, you find that there is any difference in the construction and principles of said Grand De Tour machine, and the construction and principles of the machine described in said letters patent.

(Objected to as leading.)

Ans. Well, I find by examining the Grand De Tour machine, it is entirely different from the machine described in the specifications and drawings in patent in question.

Int. 116. I will ask you whether or not, in your opinion, such difference between said machines is a material and substantial difference?

Ans. It is my opinion, that there is a material and substantial difference.

Int. 117. You may state whether or not, in your opinion, any mechanic or machinist having proper qualifications and skill in his calling and having said Grand De Tour machine for inspection and examination, and not having any previous knowledge of the machine described in said specifications and drawings annexed to patent, would be able, by means of his general knowledge
194 and skill relating to the art, to construct a machine described in said specifications and drawings and claims, without the exercise of invention, or the exercise of the inventive faculties?

Ans. No sir, he could not. Positively he could not.

The taking of testimony of John W. Bartlett is adjourned to Aug. 13, 1891, at 9 o'clock A. M.

S. E. KEAGLE,
Notary Public.

9 o'clock A. M. August 13, 1891. Met pursuant to adjournment. Present same as above, and taking of the testimony of John W. Bartlett resumed.

S. E. KEAGLE,
Notary Public.

Int. 118. In view of your knowledge and experience in mechanism, please state your opinion with respect to the particular plan of construction of said Grand De Tour machine, with respect to the same being a practical machine, or in respect to any faults radical or otherwise you may have observed?

Ans. I don't think it is a practical machine, for the reason the cutter knives are not set in the right position to the timber to do satisfactory work.

Int. 119. State what is the character of the work which, in your opinion, must be inevitable performed in attempting to dress the neck of plow handles thereon. State your opinion.

Ans. My opinion is that the work would be very rough, and a great many handles damaged by striking the corners of the knives in entering the groove of the head, rendering them useless.

Int. 120. You stated in one of your previous answers, to the effect that the knives were adjusted to the groove at a high degree of angularity. State whether or not, in your opinion, such knives could, in the nature of things, cut the material as contradistinguished from scraping the same. State your views in that respect.

(Objected to as leading.)

Ans. My opinion is that the knives set in that position will scrape, instead of cut, the material.

Int. 121. Would it, in your opinion, be practical, or even possible, for knives adjusted into the groove on the plan of said machine, and scraping in the manner you have stated, to produce any other than very poor and unprofitable results?

(Same objection.)

Ans. Not practically, it wouldn't.

195 Int. 122. State whether or not, in your opinion, to construct a machine upon the plan on which this machine is constructed, it would be practicable to obtain any other than very poor results. State your views.

(Same objection.)

Ans. It couldn't possibly be any other way, than giving

poor results, as a scraping machine will not do satisfactory work on unseasoned timber, which is necessarily used in plow factories, as the work is very rough on such material.

Int. 123. I will ask you if, in your opinion, in the dressing of wood by planing knives, whether in such a machine as described in said letters patent, or other machinery for planing wood, it is essential in order to obtain the best results, to have the shavings and chips carried off as fast as made through some easy channel. State your views.

(Same objection.)

Ans. It is essential to prevent its choking up with chips and shavings.

Int. 124. I will ask you whether or not, in your opinion, there is any practical channel provided for the escape of shavings and chips in said Grand De Tour machine. State your views.

Ans. I do not think the throat or channel is sufficient for the escape of the chips and shavings in the Grand De Tour machine, owing to the depth of cut by a scraping position of the cutting knives, as a scraping from the timber needs a larger throat or clearance than a machine with the knives in a cutting position requires for the escape of the shavings. Scrapings from the edge of the knife or scraper are inclined to roll up in a bunch and clog up the machine, whereas, shavings will pass out freely.

Int 125. You may state in view of your knowledge of the construction of the machine described in said patent, and of your knowledge of the workings of such machine, whether or not you are able to say that the machine described in the patent is provided with channels for the easy escape of chips and shavings? State what you know about the subject of inquiry.

Ins. I think it is all that is necessary and more, too, than is actually necessary.

Int. 126. Please examine these exhibits, marked respectively, 196 complainant's exhibits "B" & "C" and of date July 9, 1891, I will ask you to state whether or not, in your opinion, the neck of said handles are of sufficiently smoothness to go directly to the paint shop, except perhaps the seam on the lower and upper arcs. State according to your practical experience.

Objected to as leading, incompetent and not calling for proper rebuttal testimony.

Ans. My answer that those handles except the ribs on the lower and upper arcs are as smooth as hundreds of handles that go into the paint shop to be painted.

Int. 127. State whether or not the finish on those handles except the ribs, in your opinion, is an average finish for sending the same to the paint shop.

(Same objection.)

Ans. It is in some of the manufactories. It does not include all of them.

Int. 128. Your attention is now called to defendant's exhibit "Louisville Head," and please examine the particular construction of the same. Especially calling your attention to the particular manner of adjusting the knives to the outer side of the exhibit, and to the groove or half groove shown in the exhibit, and after having examined the same, state, according to your best judgment and opinion, what degree of angularity the knives are adjusted to the groove, and to the material designed to be dressed.

Ans. I should judge that the angle of the knife is about between 25 and 30 deg. to the timber.

Int. 129. State whether or not, upon the inspection of the adjustment of said knife to the plane of the groove, you observe that the plane of the knife does not rest on the same plane with the inner surface of the groove.

(Objected to as leading.)

Ans. I do.

Int. 130. You will please, after the dinner recess, bring with you a quadrant, or other suitable instrument, and measure such degree of angularity as nearly as possible. Can you do so?

Ans. I can.

Int. 131. Your attention is further called to defendant's exhibit "Moline Plow Co. Cutter-Head." Please examine the same, and state whether or not you ever saw the same before?

Ans. I did.

197 Int. 132. About what year was it that you first saw the same?

Ans. I think in about 1881.

Int. 133. What company was using the same, if any, at that time?

Ans. The Moline Plow Co.

Int. 134. State your connection with that Co. at that time, either as mechanic or superintendent?

Ans. As superintendent.

Int. 135. How long were you connected with that Co. in such capacity?

Ans. About 8 years, commencing, I think, Nov. 14, 1880.

Int. 136. State what you did, if anything, in the way of operating said machine personally?

Ans. I didn't do anything towards operating this machine except fitting up the knives occasionally for the operators.

Int. 137. State whether in your position you acquired a clear knowledge of the character of the work done on said machine?

Ans. I did.

Int. 138. State what part of the plow handle was sought to be dressed on said machine?

Ans. The neck or bent portion of the handle.

Int. 139. You may describe, as nearly as you are able, the kind of work said machine produced?

Ans. The work was very rough and a great many handles damaged by the operator striking the corner of the knife on entering the groove.

Int. 140. State what proportion of the handles were substantially damaged and spoilt, if any spoilt, upon said machine?

Ans. It is very difficult to tell, its being so long since, but probably from a tenth to a twentieth.

Int. 141. State the character of the work done on said machine on those handles which were not wholly damaged or spoilt?

Ans. The character of the work was very roughly done and required a finish with a spoke shave, file and sandpaper, by the handle finisher.

Int. 142. State whether or not the work in finishing the neck of the handle in the manner you have stated create a very considerable cost and expense to the Co.?

Ans. The addition of the expense after leaving this machine for dressing the handles or that portion of the handle amounted to $2.00 per hundred handles.

Int. 143. State what the loss was, in your judgment, arising from the damaged and spoiled handles to which you have referred?

198 (Objected to as immaterial.)

Ans. In my opinion it was about the cost of the labor by the operator.

Int. 144. How long did the Co. use this machine after you became connected with the Co. in Nov., 1880?

Ans. I can't remember how long they used it. They used it till I made the new machine. I can't tell when that was.

Int. 145. After having examined said plow Co. exhibit, and in view of the fact of your having previously had a perfect knowledge of its construction in all of its several component parts, state whether or not you find a difference between the construction of

said machine and the particular construction of the machine described in the specifications, drawings and claims of said letters patent?

Ans. There is a difference.

Int. 146. You may state whether or not, in your opinion, such difference is a material and substantial difference?

Ans. It is.

Int. 147. State whether or not, in your opinion, any mechanic or machinist having competent knowledge and skill in his calling, and in view of the state of the art, such mechanic or machinist having said machine, viz: Defendant's exhibit "Moline Plow Co. Cutter-Head" I mean having the full machine formerly used before him for examination and not having any knowledge of the machine described and covered by said letters patent, would be able to construct such last-mentioned machine without the exercise of the inventive faculties.

Ans. No sir, I don't think it could be done.

Int. 148. State whether or not, in your opinion, it is at all practicable to construct a machine upon the plan of the Moline Co. machine which we have been considering, so as to obtain any other than very poor and unprofitable results.

(Objected to as leading.)

Ans. It is not practicable to construct such machine.

Int. 149. State at what angle, according to your best judgment, the knives are adjusted to the inner plane of the groove, and to the axis of the material being dressed in the machine now under consideration?

Ans. It strikes the timber at an angle of about 60 deg. or upwards.

199 Int. 150. I will ask you whether or not, in your opinion, the knives put in a machine upon the plan of said machine so as to meet the material at 60 deg., whether a little more or a little less is at all consistent with the obtaining of good and profitable results?

Ans. I don't think it would.

Int. 151. Your attention is now again called to the defendant's "Louisville Head." I will ask you whether or not since adjournment you have occasion to measure the deg. of angularity at which knives are adjusted to the plane of the groove and the axis of the material to be dressed?

Ans. I have measured the angle.

Int. 152. Please state what angle you find it to be?

Ans. I find by measurement it is about 60 deg. In my first

angle I was deceived in the angle of the bit in relation to the position it lays in the cutter-head.

Int. 153. I will call your especial attention to the particular plan of the machine and the adjustment of its component parts, including the adjustment of the knives to the groove and to the openings from the inner surface of the groove in front of the upper plane of the knives and to the shape and breadth of said openings, and to the width of the cutter knives themselves, and to the narrowness and shallowness of the groove and to the general plan upon which the machine appears to have been constructed, you may state whether or not, in your opinion, there is a difference in the construction of said machine and the construction of the machine described and covered by said letters patent.

Ans. There is a difference.

Int. 154. State whether or not, in your opinion, such difference is a material and substantial difference?

Ans. It is.

Int. 155. State whether or not, in your opinion, any mechanic or machinist having competent knowledge and skill in his calling, and in view of the art, would, if having the said "Louisville Head" and the whole machine claimed to be represented by such exhibit before him for examination, and not having any knowledge of the machine described and covered by said letters patent, be able to construct said last machine without the exercise of invention and the exercise of inventive faculties?

Ans. No sir, he could not.

Int. 156. You may state whether or not, in your opinion, it would at all be practicable to construct a machine upon the plan of said "Louisville Cutter-Head" from which any results other
200 than very poor and unbeneficial results could be obtained?

(Objected to as leading.)

Ans. My opinion is that a machine constructed as the "Louisville Head" before us represents would do very poor work and unsatisfactory.

Int. 157. Please state the reason for your foregoing answer?

Ans. For the simple reason that the grooves represented in said "Cutter-Head" are too narrow and shallow, and the width of the knife or cut shown is too narrow to finish one-fourth of an ordinary plow handle and do satisfactory work, and also the knife does not come in contact with the timber in a proper angle.

Int. 156. You may state whether or not, in your opinion, there would be any scraping of the knives while being separated

by reason of the high angularity of the knives to the axis of the material being dressed, which we have seen is about 60 deg. Please explain?

(Objected to as leading.)

Ans. I think there would be rather a scraping or drawing cut, by the position the knife takes the timber.

Int. 157. State whether or not such adjustment of the knives would impair the running operations of the machine and prevent other than poor results?

(Same objection.)

Ans. I think it would.

Int. 158. State whether or not, in your opinion, it would be at all practicable to construct a machine in accordance with the plan of the Louisville cutter-head, which could produce any results other than very poor and unprofitable results. Please explain?

(Same objection.)

Ans. I don't think it would.

Int. 159. You may state whether or not, in your opinion, it would at all be practicable to build a machine having an adjustment of the knives to the groove having an angularity less than from 60 deg. and upwards, and with a view of enabling you to answer said question, your attention is called both to the Louisville cutter-head and to the machine designated as Complainant's Exhibit "A," and that part of both of said machines extending from the lower part of the groove in each machine to the center of the hub, and for the purpose of enabling you to answer the question, your attention is called in the case of Exhibit "A" and also in case of "Louisville Head" with respect to the short distance extending from the lower part of the groove in each machine
201 respectively to the center of the hub as being apparently too short a space between the lower part of the groove and the center of the hub to admit the knives of any width wider than the Louisville cutter-head knives without obtaining a very high degree of angularity?

Ans. One point there that I don't understand. You say at an angle of less than 60 deg. and upwards. Do I understand you to mean that the angle can be obtained of less than 60 deg. or about in the position they lay in the Louisville head before us?

Int. 160. Yes. The meaning of the question is whether it would be practicable to construct a machine in accordance with the

plan of the Louisville cutter-head, having the knives adjusted at a less angle than 60 deg. or about 60 deg.

Ans. I don't think it would.

Int. 161. State whether or not, in your opinion, the openings in front of the cutter-knives in the Louisville cutter-head are such as would impair the working operation of the machine or otherwise, as being or as serving the purpose of a channel for the discharge of chips. Please explain.

Ans. In my opinion, the openings are too large, and they would cause the knives to sliver the timber and split off the tips of all cross-grained handles at the rear end, which would produce very rough work, and require a great deal of hand-dressing.

Int. 162. I will ask you with respect to the Moline Plow Co. cutter-head, whether or not the openings in front of the knives had the practical effect of choking up the operations of the machine as well as causing the tip ends of the handles to be knocked off in being worked on this machine. Please explain the facts in those respects as you know them to be.

(Objected to as leading, and counsel is again requested to let the witness do some of the testifying in this case.)

Ans. That was often the case.

Int. 163. Your attention is called to the specifications and drawings in said patent on page 1st, beginning on 56th line and ending on the 60th line, and also to cross-bar F. I will ask you what particular office said block or bar occupies in the practical operations of the machine by the operator?

Ans. In my opinion, the bar is a useless construction. It is
202 not necessary for it to be there unless it be for dressing straight work.

Int. 164. I will call your attention to whether or not said block or bar would be of some service to the operator in the way of making it practically easier in handling the plow handles by resting the handles across said bar or block, and thereby relieve him from the exercise of too much physical strength.

(Objected to as leading and for the further reason that the witness has just stated that said bar was not useful in dressing handles.)

Ans. It might possibly be used by unskilled help in resting the handle on in enter of the groove and prevent his hands from being jerked into the cutter-head or knives by the bits being set too rank and snatching the handle from his hands, but for skilled help it is unnecessary.

Int. 165. I will ask you, if such purpose which, as you have mentioned, is not only possible but probable.

(Objected to as incompetent, immaterial and leading.)

Ans. I don't understand the meaning of the question.

Int. 166. You may state whether or not, at the time the machine used by Deere & Co. was in operation on the 1st day of December last, when your deposition was taken, you observed any structure in rear or in front of said machine, having the appearance of upright wooden standards with a cross-bar below binding such standards together, and such cross-bar being about on a level with the upper portion or periphery of the machine, through which the operator placed the handles in the process of applying them to the machine. You may state what you observed in respect to such arrangement.

(Objected to as leading and immaterial.)

Ans. If I remember right, there was a bar across the front end of the machine in front of the operator which he rested the handle on, when rounding the edges of the straight portion of the handles.

Int. 167. State how many heads there were on the same shaft being used by Deere & Co. at that time?

Ans. I think there were three.

Int. 168. State what portion of the plow handle was dressed on the first and second heads?

Ans. That I cannot tell, I don't remember.

Int. 169. State whether or not you observed that the 3rd one was a smaller head than the other two.

203 Ans. I can't remember whether it was the 3rd or 2nd, but I remember one was smaller than the other two.

Int. 170. I will ask you if it wasn't on the smaller that the straight work was dressed.

Ans. I think it was.

Cross-Examination by Mr. Adams.

X Int. 171. Prior to the date of the Caverly patent it was well known to mechanics, was it not, how to set a bit or a knife at the proper angle to obtain the best results?

Ans. Yes sir, I think it was.

X Int. 172. Then when Caverly set his cutting blades at the correct angle, as you have stated, he did nothing new so far as that alone was concerned, did he?

Ans. No sir.

X Int. 173. What was the extent of your powers as superintendent for the Moline Plow Co.?

Ans. To direct the work, instruct, hire and discharge, and improve machinery, and invent and construct any improvements necessary in the work.

X Int. 174. Up to the time that you entered that Co.'s employ as superintendent, how long had you been engaged in mechanical pursuits?

Ans. Since 1847, constantly.

X Int. 175. While the cutter-head exhibit Moline Plow Co. cutter-head was in use as stated, was it in pretty constant use, and what proportion of the Co.'s plow handles were dressed on it?

Ans. The handles were all dressed on it until the new machine was made.

X Int. 176. The Moline Plow Co. during that time made and used many thousand handles, did they not?

Ans. Yes sir.

X 177. As I understand you, the chief objection or what you consider an important objection to the exhibit Moline Plow Co. cutter-head" was that the knives entered the groove at such an angle that they could not do good work. Is that correct?

Ans. Not altogether. The construction of the head and the position of the knife done the work so roughly and damaged so many handles, it was necessary to abandon it and have a new machine.

X Int. 178. But the angle at which those knives enter the groove was of the great objection if not the only one, was it not?

204 It was one of the objections.

X Int. 179. And yet, with over 30 years practical experience in mechanics, with full knowledge of the proper angle at which to set a knife, and with authority to devise improvements or make changes, and with the bad work of this head being constantly called to your attention, you allowed it to be operated for four or five years, and damaging or spoiling during that time a tenth to twentieth of many thousands plow handles, please explain how you reconcile such conduct with your position as superintendent and mechanical qualifications?

Ans. For the reason simply because I was overhauling and constructing, inventing and building other machinery of more importance and looking after the other business, putting up and finishing the implements, which occupied every moment of my time up to the time the new cutter-head was commenced by order of the general superintendent and his consent.

Deposition of Jonh W. Bartlett.

X Int. 180. I understand then that you were so fully occupied for the entire period of 4 or 5 years that you couldn't find time to direct some workman to make another head having the knives set so as to enter the groove at a proper angle, and thereby save your company at least several hundred dollars a year, is that so?

Ans. We did not have a man that was mechanic enough to go to work and make the patterns fit up and adjust a machine of that construction, except myself, and their best experts swore that I could not do it, that is why the machine was not built sooner.

X Int. 181. State approximately how many mechanics were employed there at that time?

Ans. Mechanics competent to do that business to build that machine there were none except myself.

X Int. 182. Well, without referring to your own qualifications, how many mechanics were employed there?

Ans. According to my idea of what constitutes a mechanic there was not a first-class mechanic there, except myself, who could go to work and make his drafts and make his patterns from his drafts out of wood, take them to the foundry and mould them, take them to the machine shop and finish them, take the steel
205 from the bar, forge, fit and temper, adjust, set up the machine, put it in practical operation, and operate it successfully, without the assistance or instruction of any one. That is what I call a first-class mechanic.

X Int. 183. Without discoursing any further on the subject of what you think a mechanic is, please state approximately about how many men there were at the Moline Plow Co.'s shops that were hired and drew pay as mechanics, and was supposed by the officials of the Co. to be mechanics?

Ans. The Plow Co. was running at that time probably from 300 to 500 men.

X Int. 184. Was Amos K. Caverly one of them?

Ans. No sir.

X Int. 185. Without making any other change than merely making a new cutter-head in which the knives stood at the proper angle, would much expense have been incurred and time consumed? In other words, would it have cost much money or consumed much time for a competent mechanic to have made a new cutter-head like the exhibit, but with the difference that the knives were at the proper angle?

Ans. It would take considerable time and cost considerable to do it if he had to plan, and invent and arrange the shape of the

head for the position of the bits in relation to the groove in the center of the head.

X Int. 186. You would consider it invention, then, to alter the head Defendant's Exhibit "Moline Plow Co. Cutter-Head" so that the knives would strike the wood at an angle of about 45 deg. instead of at the angle they now have?

Ans. I would consider it invention to alter the head, to change the position of the knife to an angle of 45 deg. coming in contact with the timber in the best cutting position from the position of the knife in the cutter-head of the "Moline Plow Co.'s Exhibit."

The further taking of testimony of John W. Bartlett is adjourned to Friday, Aug. 14, 1891, at 9 o'clock A.M.

S. E. KEAGLE,
Notary Public.

Friday, Aug. 14, 1891, at 9 o'clock A. M. Present as before. The taking of the testimony of John W. Bartlett is resumed.

S. E. KEAGLE,
Notary Public.

206 X Int. 187. How long after you had your first improved machine built was it that Amos K. Caverly saw the same?

Ans. I do not remember. It was some considerable time after the machine had been running.

X Int. 188. And you considered that that improved machine was a decided improvement over the Exhibit "Moline Plow Co. Cutter-Head," did you not?

Ans. I did.

X Int. 189. And you considered that you had made something of an invention in producing it, did you not, and that such invention was a valuable one?

Ans. Yes sir, I did.

X Int. 190. How long before the erection of said improved machine had you conceived of the invention of the machine therein embodied?

(Objected to as being incompetent and immaterial.)

Ans. The idea was conceived about the time I commenced to make the machine, to make my drawings.

X Int. 191. Well, about how long a time was there between the commencement of the drawings and the completion of the machine?

Ans. I don't remember exactly the time, but probably two or

three weeks, as I only worked at it part of the time, when not engaged in the cares of the shop.

X Int. 192. What steps, if any, did you take towards securing your supposed invention by letters patent?

Ans. None at all.

X Int. 193. When did you make complainant's Exhibit "A"?

Ans. I think it was this last spring.

X Int. 194. At whose request did you make it?

Ans. At request of Judge Nash.

X Int. 195. What instructions did you receive?

Ans. He wanted a machine made in accordance with the specifications and drawings, according to my judgment. Well, that's about all the instructions I had.

X Int. 196. Why didn't you make it after exactly the same construction pointed out in the patent instead of attempting only to construct a machine which, in your judgment, embodied the principle of the machine of the patent?

(Complainant objects to the question for the reason
207 that the question assumes in advance that the witness didn't construct the machine as described in the specifications and drawings, but in accordance with some judgment of the witness in regard to some principle in the specifications.)

Ans. In my opinion, the machine "Exhibit A" is exactly in accordance with the specifications and drawings of the machine described in letters patent in question, in principle, and as shown, except the diminishing of the outer sides of the disks, in order to lighten the head and make it more convenient in handling the head in exhibit.

X Int. 197. You feel quite certain, do you, from the language of the specifications, that Caverly always intended to have some space between the cutting edges of the knives, so that a small rib would be formed in the handle that was dressed on said head?

Ans. I feel perfectly satisfied that he intended, by diminishing the cutting edges of the bit near the center of the groove to prevent an excessive cutting in the center of the groove, as that would be a practical manner in operating the machine.

X Int. 198. Did you ever make any other cutter-head from the specifications and drawings of the Caverly patent?

Ans. No sir, I never did.

X Int. 199. During the taking of your testimony last winter, there was in the office where such testimony was taken, a cutter-head, purporting to be a Caverly cutter-head which had the thick

disks of the patent. Do you know anything about that cutter-head?

(Objected to by complainant as incompetent and immaterial and irrelevant for the reason that no such machine was introduced in evidence in the case.)

Ans. I saw a cutter-head, but not in the office when taking testimony.

X Int. 200. Who made it, if you know?

Ans. I couldn't tell you. I do not know.

X Int. 201. It was made in accordance with the specifications and drawings of the patent, was it not?

Ans. Well, that I am unable to say, for I paid very little attention to the machine when I saw it, I remember it as a very crude, rough, unmechanical piece of work, and paid but very little attention to it.

X Int. 202. Who showed it to you?

Ans. Judge Nash.

X Int. 203. What did you understand that it represented?

(Objected to by complainant as above, and it is further
208 objected to the foregoing question and all other previous questions and answers relating to the machine referred to in the foregoing questions as not being proper cross-examination, and an inquiry into matters not brought out in the examination in chief, nor in any previous portion of complainant's testimony.)

Ans. I don't hardly understand what you mean by that.

X Int. 204. At the time Mr. Nash, the complainant's solicitor, showed you that cutter-head, did he say that it was a model of the Caverly machine, or a full-sized machine made after the Caverly patent. If not, what did he tell you it was?

(Complainant interposes the same objection as above.)

Ans. If I remember right, he said that he had got that cutter-head made which he showed me. It was such a crude, unmechanical piece of work that it was hardly fit to take into court, I think, or to show, I think, that was about all that was said at that time.

X Int. 205. I understand then, that you had no idea at all at that time what that cutter-head he showed you was supposed to be. Is that correct?

(Complainant interposes the same objection.)

Deposition of John W. Bartlett.

Ans. I did not say that I hadn't any idea.

X Int. 206. Well, what did it represent?

(Same objection.)

Ans. It represented an attempt by some unskilled mechanic or workman to imitate the cutter-head now in question.

X Int. 207. By the cutter-head now in question, do you mean the Caverly cutter-head?

(Same objection.)

Ans. I mean the Caverly cutter-head.

X Int. 208. That cutter-head had the thick disks of the patent, had it not?

(Same objection.)

Ans. It had thick disks.

X Int. 209. Did it have such construction that a handle would be ribbed if passed over it?

(Same objection.)

Ans. I couldn't remember even whether it had bits in it. If the bits were properly adjusted, it would leave a rib same as Exhibit "A."

X Int. 210. It is not true, according to your best recollection, that the crudeness and rough appearance of that machine was due largely to the fact that the maker thereof had followed the 209 patent drawings very closely?

(Same objection.)

Ans. Well, he had got pretty close to it.

X Int. 211. When you testified last winter you stated that you had no interest, pecuniary or otherwise, in the result of this cause. Can you truthfully say the same now?

Ans. I can, sir, with a clear conscience.

X Int. 212. How much did Exhibit "A" cost?

Ans. I cannot tell, as I do not know.

210 X Int. 213. How much did you charge for your services in connection with the construction of it?

Ans. I had no charges to make, for I was working for the Moline Pump Co. I never saw their bill, and know nothing about their charges.

X Int. 214. Have you no understanding or agreement with the complainant or any one connected with him or acting for him, that

you shall receive any money or moneys in compensation for your services, in case he shall prevail in this cause?

Ans. No sir; none at all other than paying me for my time spent here in this examination.

X Int. 215. Where do you now work, and in what capacity?

Ans. I work for the Eagle Mfg. Co. as pattern maker. All I expect out of this is my regular pay at $3.25 a day and including any witness fees and mileage that I may be entitled to.

Re-Direct Examination.

Int. 216. You were asked in X Int. 172, as numbered in this deposition, as follows: "Then when Caverly set his cutting-blades at the correct angle as you have stated, he did nothing new so far as that was concerned, did he?" To this question, the answer is, "No sir." In order that I may fully understand the full import of said question and answer, I would ask you to explain a little more fully with respect to the question, and for that purpose I will ask you, whether or not, in view of your experience in mechanism, that for any competent and skilled mechanic to undertake to set a knife or to adjust the same to a groove of the nature and character of the machine described in the specifications and drawings of said letters patent, where the sides of the groove are really on one plane, and the lower portions of the groove being in a circular shape and being connected with a newly constructed machine, as claimed in said letters patent, it would, in your opinion, require invention and the exercise of the inventive faculties. Please explain.

(Objected to as leading.)

Ans. It don't seem to comply with the question asked me about the bit. As this question is presented now, I think it would require considerable skill and inventive genius to arrange a plane for a cutter-bit to approach a groove containing two circles crossing each other at a right angle with each other to meet the timber
211 in the easiest cutting position.

JOHN W. BARTLETT.

Subscribed and sworn to before me, by John W. Bartlett, this August 14, 1891.

SOLOMON E. KEAGLE,
Notary Public.

[SEAL]

SYLVESTER OSBORN, witness on behalf
first duly sworn, deposes and says, in answ
him propounded by D. B. Nash, Esq., as follows.

Int. 1. What is your name, age and residence?

Ans. My name is Sylvester Osborn. My age is 54 years, and my residence is 2123 Scott St., Davenport, Iowa.

Int. 2. State what your present business is?

Ans. Foreman in the wood department of the Eagle Manufacturing Co.

Int. 3. State what kind of work is manufactured at said factory?

Ans. All kinds of agricultural implements, such as plows, cultivators, etc.

Int. 4. How long have you been connected with said manufacturing Co.?

Ans. About 21 years.

Int. 5. How long have you pursued your calling and trade, as such mechanic and machinist?

Ans. I have been in the business of operating machinery 27 years.

Int. 6. During that time state whether or not it has been a part of your business not only to operate machinery, but to construct machinery of various kinds?

Ans. Yes, it has been my business to operate and construct machinery both.

Int. 7. You consider yourself, do you not, as a master mechanic, and as having both a theoretical and practical knowledge of mechanics?

Ans. Yes sir.

Int. 8. State whether or not you consider yourself fully competent to construct machinery from written or printed descriptions of the same?

Ans. Yes sir.

Int. 9. State whether or not you consider yourself able, upon reading a written or printed description of any given machine, to ascertain and know when a given machine is presented to you
212 for examination, whether such machine is correctly constructed from such written or printed descriptions?

Ans. Yes sir, in wood-working machinery.

Int. 10. I now hand to you for examination an office copy of Letters Patent No. 303,116, which is set forth in the bill of complaint in this cause, and also I call your special attention to the specifications and drawings thereto annexed, and also the claim annexed to such specifications, and also to the particular description of the machine therein set forth, including the particular construction of the knife-beds upon the outsides of the disks composing the body of the machine, and the particular adjustment of the outer knives

upon such cutter-beds, and also the particular adjustment of such knives to the inner side and surface of the groove, also to the particular angularity of the knives to the inner plane and surface of the groove, and to the material being dressed thereon, and also to the position and construction of the openings or recesses above the upper plane of the knives for the discharge of chips and shavings; and after having thus carefully examined the particular construction of the machine thus described, in such specifications, drawings and claim, your attention is further called to the particular construction of this machine which I now show you, marked "Exhibit A" of complainant's exhibits, such exhibit bearing date July 9, 1891, including the particular construction of the knife-beds upon the outer sides of the disks composing the body of said machine, and also the particular adjustment of the cutter-knives thereon, and also the particular angularity of the knives to the inner plane and surface of the groove, and to the material being dressed, and also the particular construction of the openings and recesses above the plane of such knives for the discharge of chips and shavings, and also the form and construction of the groove, and after having thus examined the particular construction of the machine described in said specifications, drawings and claim, and also the particular construction of said complainant's "Exhibit A," you may state whether or not, in your opinion, said Exhibit "A" is in all material and substantial respects constructed according to the description set forth in the specifications, drawings and claim?

(Objected to as leading.)

Ans. Yes sir, it does correspond, as I understand it.

213 Int. 11. I understand from your preceding answer that the construction of the machine "Exhibit A" corresponds with the description of the machine in said specifications and drawings. Am I right?

(Objected to as leading.)

Ans. Yes sir.

Int. 12. Your attention is now called to three several exhibits which I now show you, the same being, respectively, defendant's Exhibit "Grand De Tour" machine and defendant's Exhibit "Moline Plow Co. Cutter-head" and defendant's Exhibit "Louisville Head," and your attention is called to the particular construction of each one of these several machines, including their grooves and the particular adjustment of the cutter-knives in the outer sides of the machines and into the grooves, and also to the openings in the inner surface of the grooves in front of the knives, and to

the particular angularity of the knives to the grooves, and to the material being dressed, and after having carefully examined all the component parts of said machines, each respectively, and the particular plan of the construction of each one of the same, you will state whether or not, in your opinion, there is a difference between the construction of each one of such machines and the construction of the machine described in said specifications, drawings and claim in said letters patent?

(Same objection.)

Ans. Yes sir, there is a big difference in the construction of them.

Int. 13. You may now state, in your opinion, whether or not such difference is a material and substantial difference?

(Same objection.)

Ans. Yes sir, it is.

Int. 14. State whether or not, in your opinion, any mechanic and machinist having competent knowledge and skill in his calling, and in view of the condition of the art, and also having before him for examination each and every of these three machines just shown you, would be able to construct the machine described in said specifications, drawings and claim without the exercise of inventive faculties?

Ans. No sir, I don't think he could. I don't think a man without the inventive ingenuity or qualities could construct a machine from those others like that one (Exhibit "A").

Int. 15. State whether or not, in your opinion, in view of
214 your mechanical knowledge and experience, it would at all practicable for a machine to be constructed upon the plan of either one of said three machines shown you, namely, "The Grand De Tour Cutter-head," Moline Plow Co. Cutter-head, and "Louisville Head," which would produce any other results than poor and unprofitable results? State your views with respect to the matter of inquiry.

Ans. I don't think they could practically be made to do good work. My objection to the Moline Plow Co. machine is that the opening is too large, also that the handle when being finished is liable to drop into the opening and have the end clipped off. "Louisville Head" also has too large an opening, and center portion of the knife stands in a position to scrape, rather than to make a natural cut. The "Grand De Tour Cutter-Head" the knives in their outer portion have a direct scrape. Another objection

common to the "Grand De Tour" and Moline H
is nothing to protect the outer corners of the kniv

Int. 16. I call your especial attention to the
machine, and will ask you to state what, in your opinion, is about the degree of angularity, which the knives are adjusted to the groove, make with the surface of the groove and with the material being dressed thereon.

215 Ans. I would say from nearly 45 deg. up to nearly right angle.

Int. 17. You will please, after recess, measure the angularity of, referred to in said question, by such instruments as you may have, such as a quadrant or any other proper instrument, and after returning at the time to which adjournment of the examination is had and further state with regard to such angularity.

Int. 18. Suppose that in point of fact, on measurement of such angularity mentioned in the last question is about 60 deg. I will ask you, upon such supposition, whether said machine having the knives thus approaching upon such angle, the inner surface of the groove and to the material being dressed, could in the very nature of things, mechanically speaking, produce any other results than poor and unsatisfactory results. State your views with respect to the subject of inquiry.

(Objected to as leading and attention is again called to the practical giving of testimony by the counsel.)

Ans. It couldn't do anything else than poor work.

Int. 19. I will ask you to state whether or not, in your opinion, in order to procure the best results, it is necessary that the chips and shavings should have a channel of easy escape as fast as produced.

(Same objection.)

Ans. Yes sir.

Int. 20. Your attentien is called to the opening in front of the knives in said "Grand De Tour" machine, and state your views with respect to said opening being anything like an easy channel for the escape of the chips and shavings.

Ans. I should say that the opening is not the right position, not the right shape and the caps is a great detriment to the free discharge of the shavings.

Int. 21. I will call your especial attention to the "Moline Plow Head." You may state about what angularity the knives in said machine are adjusted to the groove, and meets the material being dressed.

the particular angularity of the knives to the grooves, and to the material being dressed, and after having carefully examined all the component parts of said machines, each respectively, and the particular plan of the construction of each one of the same, you will state whether or not, in your opinion, there is a difference between the construction of each one of such machines and the construction of the machine described in said specifications, drawings and claim in said letters patent?

(Same objection.)

Ans. Yes sir, there is a big difference in the construction of them.

Int. 13. You may now state, in your opinion, whether or not such difference is a material and substantial difference?

(Same objection.)

Ans. Yes sir, it is.

Int. 14. State whether or not, in your opinion, any mechanic and machinist having competent knowledge and skill in his calling, and in view of the condition of the art, and also having before him for examination each and every of these three machines just shown you, would be able to construct the machine described in said specifications, drawings and claim without the exercise of inventive faculties?

Ans. No sir, I don't think he could. I don't think a man without the inventive ingenuity or qualities could construct a machine from those others like that one (Exhibit "A").

Int. 15. State whether or not, in your opinion, in view of 214 your mechanical knowledge and experience, it would at all practicable for a machine to be constructed upon the plan of either one of said three machines shown you, namely, "The Grand De Tour Cutter-head," Moline Plow Co. Cutter-head, and "Louisville Head," which would produce any other results than poor and unprofitable results? State your views with respect to the matter of inquiry.

Ans. I don't think they could practically be made to do good work. My objection to the Moline Plow Co. machine is that the opening is too large, also that the handle when being finished is liable to drop into the opening and have the end clipped off. "Louisville Head" also has too large an opening, and center portion of the knife stands in a position to scrape, rather than to make a natural cut. The "Grand De Tour Cutter-Head" the knives in their outer portion have a direct scrape. Another objection

common to the "Grand De Tour" and Moline Heads, is that there is nothing to protect the outer corners of the knives.

Int. 16. I call your especial attention to the "Grand De Tour" machine, and will ask you to state what, in your opinion, is about the degree of angularity, which the knives are adjusted to the groove, make with the surface of the groove and with the material being dressed thereon.

215 Ans. I would say from nearly 45 deg. up to nearly right angle.

Int. 17. You will please, after recess, measure the angularity of, referred to in said question, by such instruments as you may have, such as a quadrant or any other proper instrument, and after returning at the time to which adjournment of the examination is had and further state with regard to such angularity.

Int. 18. Suppose that in point of fact, on measurement of such angularity mentioned in the last question is about 60 deg. I will ask you, upon such supposition, whether said machine having the knives thus approaching upon such angle, the inner surface of the groove and to the material being dressed, could in the very nature of things, mechanically speaking, produce any other results than poor and unsatisfactory results. State your views with respect to the subject of inquiry.

(Objected to as leading and attention is again called to the practical giving of testimony by the counsel.)

Ans. It couldn't do anything else than poor work.

Int. 19. I will ask you to state whether or not, in your opinion, in order to procure the best results, it is necessary that the chips and shavings should have a channel of easy escape as fast as produced.

(Same objection.)

Ans. Yes sir.

Int. 20. Your attentien is called to the opening in front of the knives in said "Grand De Tour" machine, and state your views with respect to said opening being anything like an easy channel for the escape of the chips and shavings.

Ans. I should say that the opening is not the right position, not the right shape and the caps is a great detriment to the free discharge of the shavings.

Int. 21. I will call your especial attention to the "Moline Plow Head." You may state about what angularity the knives in said machine are adjusted to the groove, and meets the material being dressed.

Ans. It is very nearly 45 deg., it may be a little more or a little less.

Int. 22. You will please, during the recess of this examination, measure the angle in which the knives in said machine meet the groove thereof, and also the material being dressed. Do so
216 by any quadrant or instrument you may have or in your control, and state such angularity at the time to which this examination is adjourned.

(Defendant's counsel objects to the remark made by the complainant's counsel in the presence of the witness, immediately after the last answer, which remark was, "they are all 60 deg. the 3 of them.")

(Complainant's counsel states he made some such remark but the same was not intended by him for the witness, but rather as an expression betwixt himself and defendant's counsel. The remark may have been heard by the witness. The remark was a sudden impulse and it would have been better if it had not been said.)

Int. 23. Suppose, as a matter of fact, that the angularity of the knives adjusted to such machine, upon proper measurement should be about 60 deg. and thereby causing the knives to meet the groove and the material to be dressed at about that angle, you may state whether or not, in your opinion, any results other than poor and unsatisfactory results would be obtained. State your views with respect to the subject of inquiry.

(Objected to as incompetent, immaterial and leading.)

Ans. It would not be mechanically practical. The knives would have to be ground too thin and would lay down too flat.

Int. 24. On the supposition that the knives in the "Louisville Head" are adjusted to the groove and to the material being dressed at an angularity of about 60 deg. state whether or not, in your opinion, it would be at all practicable to obtain any other than poor and unsatisfactory results? State your views with respect to the subject of inquiry.

(Same objection.)

Ans. My views are, that it wouldn't be mechanically practical and would produce unsatisfactory results.

Cross-Examination.

X Int. 25. Mr. Osborn, without any reference whatever to

whether the machine will work or not, I will ask you if the exhibit "Grand De Tour Cutter-Head" cannot properly be said to be a cylindrical head having a groove in the center of its periphry, and recesses from other side terminating in narrow openings on such groove for the adjustment of the cutter knives?

Ans. Yes, that is the description of it.

217 X Int. 26. It can be further said as a true description of that head, can it not, that the recesses extending from the outer faces of the disk diminish in width as they progress and terminate in a narrow opening in the curve or groove, forming beds for the cutters and spouts for the discharge of chips. This question is also only as to the construction and without reference to the working qualities?

Ans. Yes sir.

X Int. 27. In connection with the features of construction referred to in the last question such "Grand De Tour Cutter-Head" is also provided with slotted knives secured in the openings and adjustable longitudinally therein by set screws. That is correct, is it not?

Ans. Yes sir.

X Int. 28. Now, also, without any reference to working qualities, I will ask you if in the "Louisville Head" you do not find the same features of construction that I have called your attention to in the "Grand De Tour Cutter-Head?"

Ans. Yes sir.

The taking of testimony of Sylvester Osborn on the part of complainant is adjourned to August 15, 1891, at 9 o'clock A. M.

SOLOMON E. KEAGLE,
Notary Public.

9 o'clock A. M., August 15, 1891, met pursuant to adjournment. Present as before and taking of the testimony of Sylvester Osborn is resumed.

SOLOMON E. KEAGLE,
Notary Public.

Re-Direct Examination.

Int. 29. At the time of the last adjournment you were requested to measure the angles to such extent as to satisfy you in regard to the degree of angularity of the knives in the "Grand De Tour" cutter-head. I will ask you if you have done so, and if yea, please state about what angle you find the adjustment of the knives to the groove and to the lower part of the groove particularly?

Deposition of Sylvester Osborn.

Ans. I have measured them. I will have to answer as I did yesterday. I find the angle to be from about 60 deg. up to 90 deg.

Int. 30. State whether you have in like manner, since last adjournment, ascertained about the angle to which the knives is adjusted to the groove and to the material in the "Moline Plow Co. Cutter-Head." And, if so, state the degree of such angle.

Ans. I have ascertained the angle. It is about 60 deg.

218 Int. 31. State whether or not, in your opinion, if a mechanic or machinist having proper knowledge desired to construct the machine described in the specifications and drawings and claim annexed to said "letters patent" it would be necessary for such mechanic or machinist to consider to consider as part of the description of the machine both the specifications and drawings, and to consider the specifications and drawings in connection with the claim in order to know the forms and description of the different parts of the machine.

Ans. There is so much of that and so complicated that I can hardly get through with it.

Int. 32. In other words, in order to construct a machine or the machine described in said letters patent, would it be necessary to examine both the drawings and specifications as they exist?

(Objected to as leading.)

Ans. Yes sir.

SYLVESTER OSBORN.

Subscribed and sworn to before me by the said Sylvester Osborn, this 15th day of August, 1891.

[SEAL] SOLOMON E. KEAGLE,
Notary Public.

Deposition of M. J. Kremer.

M. J. KREMER, witness on behalf of the complainant, being first duly sworn, testified as follows:

Int. 1. What is your name, age, and residence?

Ans. My name is M. J. Kremer. My age is 67 years, and my residence is 1222 Rock Island St., Davenport, Iowa.

Int. 2. What is your business or trade?

Ans. A model maker.

Int. 3. How long have you been engaged in the exercise of your calling?

Ans. Over 40 years, as near as I can remember it is 43 years.

Int. 4. State whether or not during that time you constructed various kinds of machines, and state particularly what kind of work you did.

Ans. I have constructed a great many machines and especially wood working machinery.

Int. 5. State whether or not you consider yourself a master mechanic and as such having both a theoretical as well as practical knowledge of mechanics?

219 Ans. Yes, I consider myself as such.

Int. 6. Your attention is now called to this machine or cutter-head, which I now show you, being complainant's "Exhibit A" of date July 9, 1891, and your attention is especially called to the particular construction of the machine including the particular construction of the knife-beds upon the outer sides of the disks, composing the body of the cutter-head, and also the particular adjustment of the knives to the inner surface of the groove, and the adjustment of the cutter-knives on their beds, and also the angularity of the knives to the inner surface of the groove, and to the material being dressed, also the shape and depth of the groove, and also the construction of the openings and recesses for the discharge of chips and shavings, please state whether or not you have examined the particular construction of said machine?

Ans. I have examined it.

Int. 7. Your attention is now called to three separate exhibits which is now shown you, the same being respectively defendant's "Exhibit Grand De Tour Cutter-Head" and defendant's "Exhibit Moline Plow Co. Cutter-Head" and defendant's "Exhibit Louisville Head." Please now examine carefully the particularly construction of each one of these cutter-heads and the adjustment of the component parts thereof as they appear in each machine respectively?

Ans. I have examined them.

Int. 8. You will please state whether or not, in your opinion, there is a differenee between the construction of each one of such three machines just shown you in the previous interrogatory and the construction of the machine marked complainant's "Exhibit A" which you have examined?

(In addition to the general objection entered to said Exhibit "A" and all questions and answers relating thereto, defendant's counsel objects to the question as incompetent, irrelevant and immaterial.)

Ans. I would say that Exhibit "A" is a modern machine constructed according to the latest technical improvements in wood-working machinery. I don't see any defective part which would keep on clogging up the shavings or hinder doing smooth work.

The adjustive parts are very well arranged so that not one 220 obstructs the other. But the Grand De Tour is, I think, one of

the most primitive machines I ever seen. Its working parts i in strict contradiction of a law of nature which we call the centrifuga force, as it tries to force the shavings towards the center instea of letting them have a chance to escape in accordance with tha above-mentioned force, and the adjustment of the cutters or knive are in such a shape that it must form an obstruction in getting ri of the shavings, and I don't think that machine has ever worked, an if it has worked, it must have been very poor work it done. Th Moline Plow Co. cutter-head is an improvement on the other one the Grand De Tour," in principle, but a failure in technic, as th construction of the cut of the knives and the fastening them is th poorest one I ever seen, as there is not room enough directly i front of the knives so to make it work free. "The Louisvill Head" has a similarity to the Moline Plow Co. cutter-head, but th principle is a poor one, as the attachments of the knives are in an inconvenient place, or a wrong place altogether.

Int. 9. You may state whether or not, in your opinion, any mechanic or machinist having competent knowledge and skill in his trade or calling, and in view of the condition of the art and having before him for examination these three machines, namely, defendant's "Exhibit Grand De Tour Cutter-Head," and defendant's Exhibit Moline Plow Co. Cutter-head," and defendant's Exhibit Louisville Head," such mechanic or machinist would be able without having any previous knowledge of complainant's machine "Exhibit A" to construct said last-mentioned machine without the exercise of invention and the exercise of inventive faculties?

Ans. That is a question that would be hard to answer. I believe no man can invent anything now days. We all build upon knowledge of inventions which have been tried or in use and learn out of that the best qualities. I at least could not base opinion or my idea on these old machines in constructing the one like "Exhibit A." I would rather examine more advanced and modern machines, as there is no principle involved in the old exhibits which is placed or used or adopted in the new one, "Exhibit A."

Cross-Examination.

X Int. 10. I presume that from your long acquaintance with wood-working machinery, you have seen cutter-heads for
221 dressing wood many years before 1883, have you not?

Ans. Yes sir, I have made cutter-heads in 1853.

X Int. 11. Did any of such cutter-heads that you saw or made before 1883 have a groove in their periphery?

Ans. Yes sir.

X Int. 12. They had bits or cutter knives projecting into the groove, did they not?

Ans. Yes, grooved in various shapes and forms.

X Int. 13. Well, then from your knowledge of the subject, if you had been requested in 1883, or before, to make a cutter-head with a groove in its periphry, and with knives projecting into the groove, you would have known at what angle such knives should have been set to do good work, wouldn't you?

Ans. O, yes.

X Int. 14. And it wouldn't require invention on your part to do it, either, would it?

Ans. It would not, if a man had brought me a sketch or drawing showing how to do it, as there is only one old maxim, the old hand plane, wherever that principal is strictly adhered to rotary or sliding the machines have been successful, and all who have varied from that principle have failed.

X Int. 15. Then if before 1883 you had been requested to make a grooved cutter-head and had no drawings to go by, you would have put knives in on the principle of the plane that you refer to, and the machine would cut wood successfully, would it not?

Ans. Undoubtedly it would, but there is other conditions to be considered; that's principally the centrifugal force. There should be room enough for the escape of the shavings in accordance with that law of nature.

X Int. 16. Well, you certainly would, in view of your knowledge of such machinery, have provided discharge orifices or passages on that principle, would you not. I mean that if you had been making that machine that we spoke of in the last question, you would, in addition to placing the knives properly have also provided proper openings, such as you spoke of, for the discharge of chips and shavings?

Ans. Yes, undoubtedly I would.

X Int. 17. I call your attention to the drawing of a machine shown in Patent No. 303,116, and ask you whether if a machine was made just like that drawing you would consider that it 222 embraced the latest technical improvements in wood-working machinery?

Ans. No sir, it don't, as the change of the circle or groove will change the position of the angle on the degree of the knife.

Re-Direct Examination.

Int. 18. Do I understand to mean in your answer to X Int. 17 that a change in the diameter of the central part of the groove, whereby the circle is either enlarged or diminished, that in propor-

tion to the enlargement or diminishing of such circle there would be a corresponding change in the angle of the degree of the knives? Do I understand you correctly?

(Objected as grossly leading.)

Ans. Undoubtedly, in order to accomplish the same degree, the knife would have, in accordance with the circle, to cut on all sides alike, would be necessary to be bent according to the curve. A straight knife can be ground or filed the shape desired, would not have the same cutting principles all around.

Int. 19. Suppose, then, the cutter-head shown in this drawing annexed to Patent 303,116, and set forth in complainant's bill of complaint, should be considered as having the same dimensions of the cutter-head "Exhibit A," and having the same depth of groove, and having the knives adjusted in substantially the same way, and in the same angle, and having the same width, and having the same openings and grooves for the discharge of the chips, and having flat knives adjusted in the head instead of curved knives, I will ask you if the running principles of the machine shown in said drawing would not be the same as the running principles in this machine "Exhibit A"?

(Same objection.)

Ans. I should say no; there is a great difference in the two constructions.

The taking of the testimony is adjourned till 1:30 o'clock P. M. of August 15, 1891, for dinner.

S. E. KEAGLE,
Notary Public.

Met pursuant to adjournment at 1:30 o'clock P. M.

S. KEAGLE,
N. P.

Re-Direct Examination Resumed.

Int. 20. Please state what difference you find, if any, between the construction of this machine Exhibit "A" and the machine
223 shown in the drawings and specifications of said letters patent?

Ans. The difference is, that this in the drawing is different from that, on account of its clumsiness, showing an overloaded part of metal, which impairs the running, causing friction in the journal boxes and the atmospheric air, and in showing a knife in two different shapes, one is a concave and one is a straight. While in

Deposition of M. J. Kremer.

that machine "Exhibit A" is one kind of a knife, and farther, the bolts which holds the knives in place in the seat are covered in this drawing, while in that machine there they are free to get at them at any place and any time. In principle I would say it is the same, but technically is great different.

M. J. KREMER.

Subscribed and sworn to before me, by the said M. J. Kremer, this 15th day of August, 1891.

SOLOMON E. KEAGLE,
Notary Public.

[SEAL]

Deposition of Emil Einfeldt.

EMIL EINFELDT, of lawful age, witness on behalf of complainant, being first duly sworn, testifies as follows:

Int. 1. What is your name, age, occupation and place of residence?

Ans. My name is Emil Einfeldt, my age is 36 years, my occupation is machinist, and my residence is Davenport, Iowa.

Int. 2. What is your particular position just at present?

Ans. Just at present it is taking charge of the pattern works, and all machine work required by the Eagle Manufacturing Co. in the shop.

Int. 3. How long have you been engaged in your business as machinist?

Ans. Ten years.

Int. 4. State whether or not, during that time or before, you have been accustomed to constructing machinery and machines of various kinds?

Ans. Yes sir.

Int. 5. State whether or not you consider yourself as being a master mechanic, and as such having both a theoretical as well as practical knowledge of mechanics?

Ans. I consider myself such.

224 Int. 6. I will show you now a patent office copy being No. 303,116, which is set forth in the bill of complaint in this cause, and will call your attention to the drawings and specifications of the machine therein described, including the construction of the knife-beds upon the outside of the disks composing the body of the machine. Also the particular adjustment of the knives upon the cutter-beds, and the adjustment of such knives to the inner surface of the groove; also to the particular angularity of the knives, to the planes and surface of the groove and to the material being dressed; and also to the position and construction of the openings or recesses for the discharge of chips and shavings, and

after having carefully made such examination, I would further call your attention to the particular construction of this machine which I now show you, being complainant's "Exhibit A" of date July 9, 1891, including the particular construction of the knife-beds on the outer side of the disks, composing the body of the machine and the particular adjustment of the knives to the knife-beds, and the angularity of the knives to the planes and surface of the groove, and to the material being dressed, and to the particular position and construction of the openings or recesses for the discharge of chips and shavings, and after having examined said machine, I will ask you to state whether or not, in your opinion, said machine being "Exhibit A" is in all material and substantial respects constructed according to the description of the machine illustrated and described in the drawings and specifications in said letters patent?

(Objected to as leading.)

Ans. Well, it is made according to the machine in the drawings and specifications with the exceptions of this head "Exhibit A" having a diminution in the sides of the machine.

Int. 7. Your attention is now called to three several exhibits, namely, "Grand De Tour Cutter-Head," "Moline Plow Co. Cutter-Head," and "Louisville Head," which I now show you, and your attention is called to the particular construction of each one of these several machines, and to the several component parts of each one thereof, and the mode of adjustment of the knives in each, and after having examined the construction of said machines as indicated, I will ask you whether or not you find any difference
225 between the construction of these several machines and the machine described in the drawings and specifications of the said letters patent?

(Same objection.)

Ans. There is a great difference.

Int. 8. State whether or not, in your opinion, such difference is a material and substantial difference?

Ans. It is.

Int. 9. State whether or not, in your opinion, any machine or machinist having competent knowledge and skill in his trade and having for examination before him the 3 exhibits last above alluded to, and also in view of the condition of the art, would be able to construct the machine described in said specifications and drawings without the exercise of invention and the exercise of the inventive faculties in case he had no knowledge of the machine described in said letters patent.

Ans. Yes, it would require knowledge.

Int. 10. I will state the question in somewhat different form, as follows: State whether or not, in your opinion, it would require the exercise of invention and the exercise of the inventive faculties to construct the machine described in said drawings and specifications after such mechanic had examined said 3 exhibits?

Ans. It does.

Cross-Examination.

X Int. 11. Mr. Einfeldt, you have carefully read over the entire specifications of the Caverly patent, have you not?

Ans. Yes sir.

X Int. 12. In the first part of the specification, it is stated that rotary cutters were old and that work done on them had to be smoothed or finished with the sand belt, is it not?

Ans. It is.

X Int. 13. Don't you understand that the leading object of Caverly's invention was to produce a cutter-head that would finish work so smoothly that no further dressing or finishing would be required?

Ans. It was.

X Int. 14. Have you ever seen any work done on complainant's "Exhibit A?"

Ans. I have seen work that was done on it. I refer to the handle marked complainant's "Exhibit C."

X Int. 15. That handle has a rib on the upper and lower side, has it not?

Ans. It has.

X Int. 16. From your experience in agricultural machine
226 shops, I will ask you whether such ribs would be left on a handle that was applied to a plow, or would they first be removed?

Ans. They would be removed.

X Int. 17. Then strictly speaking, plow handles dressed like "Exhibit C" could not be said to be "sufficiently smooth to go directly to the paint shop without further smoothing or finishing," could they?

Ans. They can if the knives are properly set or properly ground. These knives in "Exhibit A" are a little too short on the longest cutting point.

X Int. 18. Then, if I understand you, you mean if the knives were set as shown in the patent, so that they would cut the wood and not leave those ribs, then it would be sufficiently smooth to go to the paint shop without further finishing. Is that correct?

Deposition of Emil Einfeldt.

Ans. It is correct.

X Int. 19. There is nothing said in the specification about making the cutter-head so as to leave ribs on the handles, is there?

Ans. There is not, but the knives are made to suit the work, which can be made longer on the point in "Exhibit A" to avoid the rib.

X Int. 20. And as Caverly in his specification in a number of places refers to the fact that handles dressed on his machine are ready to be painted without any further cutting or finishing of any kind, it is plain enough, isn't it, that he meant to have such handles always turned out perfectly smooth and without any such ribs as are on this "Exhibit C?"

Ans. If knives are made long enough on the cutting points, and as he says nothing in particular about the shape of the knives on the cutting point, which may vary in shape to suit the work, it will then do the work without leaving the ribs.

X Int. 21. And from his frequently speaking of doing work that needed no further cutting or finishing, isn't it plain to your mind that he didn't mean to have the ribs left on the handles as in this "Exhibit C?"

Ans. It will not leave ribs and not interfere with his patent to have the knives constructed as before mentioned.

X Int. 22. Do you understand, by his specification, that he meant to have such ribs left on or not?

Ans. He did not mean to have such ribs, and will not, if the knives are made as before mentioned.

X Int. 23. Before 1883, had you ever seen any cutter-heads 227 for dressing wood?

Ans. I had.

X Int. 24. Did any of them have grooves in the rim?

Ans. Not to my recollection.

X Int. 25. Would it have been invention, in 1883, to change the angle of cutting-knives from an improper angle to a proper one, or could that have been done by any good mechanic used to wood-cutting tools and machinery, by the use of ordinary skill?

Ans. It would have been an invention for the class of work that "Exhibit A" performs.

X Int. 26. You make that answer, do you not, on the theory that any change in a machine that produces better results is an invention?

Ans. I do.

EMIL EINDFELDT.

Subscribed and sworn to, before me, by Emil Eindfeldt, this 17th day of August, 1891.

SOLOMON E. KEAGLE,
Notary Public.

[SEAL]

Deposition of Wm. H. Sadler.

230 WILLIAM H. SADLER, witness on behalf of complainant, being first duly sworn, testified as follows:

Int. 1. What is your name, age, occupation and place of residence?

Ans. My name is William H. Sadler. My age is 59 years. My occupation is pattern maker, and my place of residence is Moline, Ills.

Int. 2. State how long you have been in the exercise of mechanical business?

Ans. About 35 or 40 years.

Int. 3. State whether or not, during that time you have had occasion in your vocation as a mechanic to construct machinery of various kinds for planing, cutting and dressing wood.

Ans. Yes sir, I have.

Int. 4. State whether or not you consider yourself as master mechanic, and as such having both a theoretical and practical knowledge of mechanics.

Ans. Yes sir, I claim to be.

Int. 5. Your attention is now called to this office copy of Letters Patent No. 303,116, which is set forth in the bill of complaint in this cause, and also to the specifications, drawings and claims thereon, and also to the particular construction of the knife-beds on the outside of the disks composing the body of the machine, and to the adjustment of the cutter knives upon such beds, and to the adjustment of the knives to the inner side and surface of the groove, and also to the particular angularity of the knives to the surface of the groove, and to the material being dressed, and to the position and construction of the openings or recesses for the discharge of chips and shavings, and after having examined the

231 foregoing mentioned machine, as constructed and described in said patent, your attention is further called to the particular construction of this machine which I now show you being complainant's Exhibit "A," and also to the particular construction of the knife-beds upon the outer sides of the disks composing the body of the machine, and to the adjustment of the knives upon such beds, and to the angularity of the knives to the inner surface of the groove, and to the material being dressed, and as to the particular construction of the openings or recesses for the discharge of chips

and shavings, and to the form and construction of the groove, and after having examined the same, I will ask you whether or not, in your opinion, said Exhibit "A" is in all material and substantial respects constructed according to the description of the machine set forth in said drawings, specifications and claim of said patent.

(Objected to as leading.)

Ans. It seems to be about the same thing as Exhibit "A." That is about the way I would make a machine if I was called upon to build one.

Int. 6. Your attention is now called to these three several cutter-heads, which I now show you, the same being, first, defendant's "Exhibit Grand De Tour Cutter-Head," second, defendant's "Exhibit Moline Plow Co. Cutter-Head," and 3rd, defendant's "Exhibit Louisville Head," and your attention is called to the particular construction of each one of these several machines, including their grooves, and the adjustment of their cutter knives in the sides of the machines, and to the openings in the grooves in front of the knives, and the particular angularity of the knives to the grooves, and to the material being dressed, and after having examined all such component parts of such machines, and the plan of the construction of each one of the same, you will please state whether or not, in your opinion, there is a difference between the construction of each one of such machines, and the machine described in said specifications, drawings and claim in said letters patent.

Ans. O, yes, there is a difference.

Int. 7. Please state whether or not, in your opinion, that such difference is a material and substantial difference?

Ans. It is.

Int. 8. State whether or not, in your opinion, it would require the exercise of invention, and the exercise of inventive faculties for a mechanic or machinist having competent knowledge and skill in his calling, having had before him for examina-
232 tion the three several machines, or exhibits above mentioned, and not having any knowledge of the machine described in said letters patent, and in view of the condition of the art to construct a machine described in said letters patent, state according to your views with respect to the subject of inquiry.

Ans. To construct a machine of that kind, I wouldn't want to see these three machines at all. I find nothing in these three machines that would give me any instruction in making a machine like the one in the specifications.

Int. 9. State whether or not it would require, in your opin-

ion, the exercise of invention, and the exercise of inventive faculties for a properly qualified mechanic to construct the machines described in said letters patent, after having examined these three said several machines, and not having previous knowledge of the machine described in said letters patent.

Ans. Well, I should say it would in my opinion.

Cross-Examination.

X. Int. 10. Where do you work?

Ans. At the Moline Pump Works.

X. Int. 11. How long have you worked there?

Ans. 5 or 6 weeks.

X. Int. 12. Where did you work before that and how long?

Ans. Worked for the Moline Plow Co., in the neighborhood of four years.

X. Int. 13. As a pattern maker in both places?

Ans. Yes sir.

X. Int. 14. Did you know Amos K. Caverly in his lifetime?

Ans. I did.

X. Int. 15. How long did you know him?

Ans. 4 or 5 years.

X. Int. 16. Were you intimately acquainted with him, and a friend of his?

Ans. Well, I suppose I was a friend of his.

X. Int. 17. Did you have anything to do with the making of Exhibit A?

Ans. I think not.

X. Int. 18. When, for the first time, did you see that exhibit?

Ans. I couldn't say.

X. Int. 19. How many times have you seen it?

Ans. This is the second time I think I seen this head.

233 X. Int. 20. When did you see it before, and who showed it to you?

Ans. I saw that head here in this room some time ago. Mr. Nash showed it to me.

X. Int. 21. When did you first read the entire specification of the Caverly patent?

Ans. To-day, I think. I know, in fact, to-day is the first time I seen them.

X. Int. 22. You haven't read that specification from beginning to end, have you?

Ans. Not from beginning to end.

X. Int. 23. You haven't read 20 lines in it to-day, have you?

Ans. Yes, I read more than that, and all I needed for the knowing of what it is.

X. Int. 24. Did you read at least half of the printed description?

Ans. Yes sir, ⅔ of it.

X. Int. 25. You didn't take more than 5 minutes in all your reading, did you?

Ans. Yes, I took longer than that.

X. Int. 26. How long did you spend at it. I mean the actual reading of the printed part?

Ans. I should say at least 8 minutes anyway.

X. Int. 27. You mean to say, do you, that from a hasty 8 minutes reading of a specification composed of 4 closely printed columns, and omitting as you state at least a third of the description, you are competent to give expert testimony in comparing machines with that patent. Is that right?

Ans. Yes sir.

X. Int. 28. What part of the specification did you deem it unnecessary to read?

Ans. Well, part on the front part down to parts that didn't refer to the machine, I just skimmed over.

X. Int. 29. Did you read the claims?

Ans. Yes sir.

X. Int. 30. Can you tell how many there are without looking at the specifications?

Ans. I didn't count them.

X. Int. 31. During your testimony, you bear in mind the language of those claims?

Ans. Yes.

X. Int. 32. Now, can you on oath state from recollection 234 that there is more than one claim in those specifications?

Ans. I think there is more than one.

X. Int. 33. But you can't swear to it?

Ans. No, I looked at the drawings and the position of the knives.

X. Int. 34. If you can't swear to it, why didn't you just swear during your testimony you kept in mind the language of the claims?

Ans. Well, the claims were read and I looked more at the drawings of the machine, and the machine "Exhibit A."

X. Int. 35. Without looking at the specification, can you state what kind of rest is provided upon which to support the work?

Ans. It comes right down on solid iron. No cutter there.

X. Int. 36. That is what the specifications described is it?

Ans. Yes, there is no cutters there, there is a space between the cutters which leaves a rest between the cutters.

X. Int. 37. The specifications describe that kind of a rest does it?

Ans. Well, the specifications specifies another rest there, but it is never used. It is just a bar across the machine, but is just in the way, I should call it.

X. Int. 38. With a little space between the knives as you have spoken of, a small rib would be left on the handle after being run over the head, would it not?

Ans. No, it would carry the knife down so close that it wouldn't be noticed hardly.

X. Int. 39. Did you read the long operation of the machine as set forth in the specification, or did you know enough about the operation so that it wasn't necessary to read it?

Ans. I read that.

X. Int. 40. All of it?

Ans. Pretty near all of it.

X. Int. 41. What is the arrangement of the knives that the inventor says he prefers?

Ans. A straight knife on a straight bed same as in that machine.

X. Int. 42. Are you sure he expressed any preference at all?

Ans. It occurs to me that he did from what I read of it.

X. Int. 43. Not having read it all, though, you can't be sure about that?

235 Ans. No, it didn't impress it on my mind.

X. Int. 44. How many kinds of knives did he mention, if more than one?

Ans. Yes, there is more than one kind described here.

X. Int. 45. How many kinds of knives, and what were they?

Ans. I think there were two, one was a straight knife, and one was a curved knife.

X. Int. 46. Do you understand that a cutter-head made in one piece, would be the equivalent of a cutter-head made of 2 disks secured together, as "Exhibit A?"

Ans. No sir, I don't think it would.

X. Int. 47. Caverly, by his specification, never meant to make his cutter-head except in 2 parts as shown in Exhibit "A," did he?

Ans. I think not.

X. Int. 48. As far back as 1883, wouldn't any mechanic

that knew his business, know enough to fix cutter knives at the right angle to cut wood properly?

Ans. Not without a great deal of experience in trying, at least it had been tried.

X. Int. 49. What is the proper angle at which cutter knives should be set?

Ans. An angle of 45 deg.

X. Int. 50. And hasn't that been known as long as you have been in the business?

Ans. I don't know whether it has or not on cylinders like that, it is hard to get at. It takes invention and trying to get them to cut just right.

X. Int. 51. Long prior to 1883, it was well known in other tools and machines was it not, that cutter knives, or bits should be so set?

Ans. Well, it wasn't a standard, in planes and bits, they have an angle of about 45 deg. but it aint the same in all machines.

X. Int. 52. The chief difference between the 3 old defendant's exhibits and Exhibit "A," is that in the old exhibits the knives are not set so as to do clean nice work as Exhibit "A," isn't it?

Ans. No, they are not constructed so as to do good work. I have had experience with them.

X. Int. 53. When and where have you had experience with those exhibits?

236 Ans. I just seen that one, Moline Plow Co. Cutter-Head, work in the shops of the Moline Co., when I was at work there.

X. Int. 54. When was that?

Ans. Well, I couldn't say exactly, before I went to work there they was using that and it spoilt so many handles they abandoned it.

X. Int. 55. What experience did you have with that machine personally?

Ans. Well, the most I had with it was seeing them set the knives, and working at it to have it do good work.

X. Int. 56. Your information with respect to its spoiling a good many handles, is obtained from the statements of others, isn't it?

Ans. Not wholly; I saw the handles that spoilt, and some that was dressed.

X. Int. 57. They managed to dress a great many handles on it that they used, didn't they?

Ans. O, yes; they had some good handles, good straight grained stuff made good handles, poor stuff they spoilt it.

X. Int. 58. Didn't you work there when John W. Bartlett was superintendent?

Ans. I did, sir.

X. Int. 59. Did you work there when the said exhibit, that we have been talking about last, was in use by the Moline Plow Co.?

Ans. They had it in there. They were using it till we built them another one.

X. Int. 60. Did the Moline Plow Co., at that time employ any first-class mechanics?

(Complainant objects as not proper cross-examination.)

Ans. Well, we all claimed to be good mechanics.

X. Int. 61. You don't agree with John W. Bartlett, then, when he says that for 4 or 5 years, and including the time that you were there, he was the only first-class mechanic in the shops?

(Same objection.)

Ans. It depends on how he looks on that. I claimed to be a mechanic at that time.

237 X. Int. 62. And there were lots of other men there at that time that you consider good mechanics, were there not?

Ans. There were a few that were good in their branch.

X. Int. 63. You were one of the few, I suppose?

Ans. Yes.

X. Int. 64. Are you interested at all in this case?

Ans. Not that I know of.

X. Int. 65. Are you related in any manner to any of the Caverly family?

Ans. I am.

X. Int. 66. What relation are you to that family, or any member of it?

Ans. One of the family married my daughter.

X. Int. 67. That member of the family that married your daughter is Herschel Caverly, the complainant in this case, is he not?

Ans. Yes sir.

X. Int. 68. Are you not aiding him financially to prosecute this suit?

Ans. No sir, I am not. I knew nothing about the suit till a short time ago.

Re-Direct Examination.

Int. 69. State whether or not, in your opinion, the drawings

annexed to said specifications make a very full showing of the manner in which the machine covered by the patent is to be constructed, and that a properly qualified mechanic on inspection of the drawings, together with that part of the specifications relating simply to the construction of the machine, would find no difficulty in actually constructing the machine, or in forming an opinion whether any given constructed machine is also constructed in accordance with the machine covered by the patent. State according to your views.

(Objected to as leading.)

Ans. Well, I should have no difficulty in building a machine from the drawings and specifications of the patent.

Int. 70. State whether or not you examined the Caverly drawings, and specifications to such an extent that you fully understood the complete construction of the machine.

(Same objection.)

Ans. I did. The drawings and specifications, what I read of them, gave me all the knowledge I want.

Int. 71. Do I understand you that the drawings and specifi-
238 cations which you read gave you all the knowledge necessary to a full and complete understanding of the construction of the machine?

(Same objection.)

Ans. Yes sir.

WM. H. SADLER.

Subscribed and sworn to before me, by the said Wm. H. Sadler, this 18th day of August, 1891.

[SEAL] SOLOMON E. KEAGLE,
Notary Public.

Deposition of Herschel Caverly.

HERSCHEL CAVERLY, the complainant, being sworn, testified as follows:

Int. 1. Your deposition has been taken before in this cause, has it not?

Ans. It has.

Int. 2. Up to what year did you live and reside with your father at home?

Ans. The fall of 1878.

Int. 3. You were married then at that time and lived quite near your father's, did you not?

Ans. I lived in a different house but in the same lot.

Int. 4. State what your father, as near as you can tell, did during 1878 and 1879.

Ans. In the summer of 1878 he was sick, and in the fall of 1878 and winter of 1879, he worked at his trade, wagon making.

Int. 5. What did he do in the fore part of the year 1878?

Ans. In the spring of 1878, he took a trip down through Kansas for 2 or 3 months for the benefit of his health.

Int. 6. What did he do in the time following the winter of 1878 and 1879?

Ans. Well, he finished the winter, and worked the next summer at wagon making.

Int. 7. You mean the summer of 1879, do you?

Ans. Yes sir.

Int. 8. Where did your father work in 1880?

Ans. I think he had started a little repair shop and done some new work for himself in the wagon work line.

Int. 9. State whether or not, during the years 1878, 1879 & 1880, he worked for the Moline Plow Co.?

Ans. To my recollection he did not.

Int. 10. State where your father was living with his family in the spring season of 1870, and some years prior thereto?

Ans. He lived in Moline, Ills.

Int. 11. And he continued to reside there until he died?

239 Ans. His home was there.

Int. 12. He died in July, 1886, did he not?

Ans. He did.

Int. 13. While you were residing at your father's home, state whether or not you have any remembrance of your father speaking about his having invented a plow handle dresser?

(Objected to as incompetent & immaterial.)

Ans. I do remember.

Int. 14. State whether or not you have any remembrance of your father having constructed a wooden model which he claimed at the time, to represent the said invention?

(Objected to as incompetent, immaterial and leading.)

Ans. I do remember seeing him work on a model, which was exactly in appearance to the machine which we now have.

Int. 15. Do you refer to the machine described in letters patent, or otherwise?

(Same objection.)

Deposition of Herschel Caverly.

Ans. The machine, or model that he made was of wood, otherwise it looked to me the same as the machine we now have on the table here.

Int. 16. Do you have reference in your last answer to complainant's exhibit of July 9, 1891, and which has been shown to witnesses during the examination of witnesses preceding you?

Ans. I do.

Int. 17. State, if you are able, the year and the season of the year in which said model was constructed?

Ans. In the spring of 1870.

Int. 18. State whether or not there existed any contemporaneous fact or event which enables you to fix the spring of 1870, as being the date of construction or finishing of said model?

Ans. There was.

Int. 19. Please state the same.

Ans. It was my last days in school, and I went to work at the woolen factory. It was the first factory I ever worked at.

Int. 20. State the name of such factory?

Ans. Moline Woolen Mills.

Int. 21. Do you mean to be understood then that you are able to associate the existence of said model so constructed with the date of your last school days, and of your beginning to work for said woolen factory? State is such is your intended meaning.

Ans. It is.

Int. 22. Please, as near as you can describe said model, together with its component parts and adjustment of the parts?

(Objected to as incompetent and immaterial.)

240 Ans. Well, I can't give the same description that an expert would, but it was made of wood. It consisted of two cylinders turned out, so that the groove would be the shape of a plow handle, and each of these cylinders and parts of cylinders had 3 knives in the sides. The knives were fastened with set screws, and in looking at the model a person of my experience, or what little experience I had, would see that they were intended to cut like a plane. That's all the description I can think of.

Int 23. State what the appearance of the knife-beds were.

Ans. They were lugs on the sides of the cylinders that they were fastened to.

Int. 24. About what angle were such knives adjusted to the inner sides of the grooves of said model?

Ans. I should judge about 45 deg. I never inquired of him to be positive of it.

Int. 25. State how the knives were set, and the cutting edge of the same, as respects the central part of the machine?

Ans. They were set about square with the center of the machine.

Int. 26. State what, if any, recesses or openings for the escape of the chips were created or formed or constituted a part of the construction of the model.

Ans. The openings for chips & shavings were in front of the knives.

Int. 27. State whether the chips & shavings escaped in the manner as in the case of a common plane.

Ans. They did.

Int. 28. In how many parts did the body of the model consist?

Ans. In 2 parts.

Int. 29. Secured together, were they?

Ans. Yes.

Int. 30. How were the lower points of the knives adjusted to the lower part of the groove, do you remember about that?

Ans. I do not.

Int. 31. State whether or not you heard your father state at that time as to what particular work his invention was designed to accomplish?

Ans. It was understood to be a machine for dressing plow handles.

Int. 32. I will now show you this model which complainant introduces in evidence, in his part in this cause, marked complainant's "Exhibit E," which you will please examine carefully, 241 and then state whether or not you find any difference at all between the construction of the model, which you have testified your father constructed or finished in the spring of 1870, and the model which has just been shown you.

(The "Exhibit E," just offered in evidence is objected to as incompetent, and all questions relating thereto are objected once for all, for the same reason.)

Ans. I see no difference.

Int. 33. State whether or not you have a clear memory with respect to the material and substantial construction of the said model constructed by your father in the spring of 1870 or otherwise?

Ans. Well, my memory is clear as to how it looked then, of course the dimensions or the slant or pitch of the knives were something that I couldn't understand, only as I was told they were

for at the time he was working on them. It was mere nonsense for him to try to explain the mechanical part of the machine to me.

Int. 34. I will call your special attention to this model which has been shown you, with respect to the looks and appearance of the same including the tools & appearance of the body of the model as being composed of 2 disks secured together and with respect to the looks and appearance of the knife-beds constructed on the outside of the disks and to the looks and appearance of the knives adjusted and secured thereon, and to the looks and appearance of the angularity of such beds and knives to the inner plane and surface of the groove, and to the looks and appearance of the openings or recesses passing above the upper plane of the knives and outwardly for the for the discharge of chips and shavings, and to the looks and appearance of the inner surface of the groove, and to the looks and appearance of the knives as adjusted to the groove, and to the lower part of the groove, and after having fully inspected, with respect to its said construction and observed its looks and appearance in every respect. I will ask you whether or not you find any difference whatever in any material or substantial respect, or any respect save and except perhaps in matters of simply dimensions of length, breadth or thickness, between the looks and appearance of this model in such respects, and the looks and appearance of the model constructed by your father in
242 the spring of 1870, including all the several component parts of said model and the adjustment thereof.

(Objected to as leading.)

Ans. I answered it all twice or three times. I see no difference.

Int. 35. State whether or not you have any remembrance of your father having constructed a machine claimed by him to be intended to represent said invention at a time subsequent to the spring of 1870, but comparatively a short time after 1870, but constructed of cast iron and steel knives?

Ans. I have.

Int. 36. Please state the year or season of the year as near as you can?

Ans. It was somewhere in 1871.

Int. 37. State whether or not you can fix the season of 1871, in which the same was so constructed?

A. I can't say that I can fix the exact season.

Int. 38. Is there any event or circumstance that tends to impress it upon your memory? Please state the same.

Ans. Only that it was the year after he finished the wooden model.

Int. 39. State what, if any, difference there was between the construction of that iron cutter-head machine and the construction of the model which your father had made in the spring of 1870.

Ans. None as I know of.

Int. 40. State whether or not there was any difference between the looks and appearance of said iron cutter-head including the looks of the construction of its several component parts including the looks and appearance of the adjustment of the knives to the groove, and the looks and appearance of the recesses for the discharge of chips, and the looks and appearance of the knife-beds and the knives adjusted thereon, and the looks and appearance of the grooves and to the adjustment of the knives to the inner surface of the groove, and the looks and appearance of the said model in the spring of 1870, and the construction of its several parts.

Ans. They looked the same to me.

Int. 41. You may state how many machines constructed of cast iron and steel knives did your father construct and about when, up to and including the year 1876?

A. I think one in 1871, one in 1874, and one in 1876, as near as I can remember.

243 Int. 42. You will state whether or not these iron cutter-heads which you have mentioned, from and after 1871 up to and including 1876, were made in substantial conformity to the model of the spring of 1870, with some variations, however, with respect to the adjustment of knives, such variations being made for the purpose of experimenting in an attempt to arrive at the best cutting position of the knives.

Ans. They all looked the same to me.

Int. 43. I will ask you if these heads were not all made of two parts or disks secured together by bolts?

Ans. They were.

(Defendant's counsel objects once for all to all testimony relating to the model & machines alleged to have been made between 1870 & 1876 as incompetent.)

Cross-Examination.

X. Int. 44. When did you last see the model that was made in 1870?

Ans. I couldn't say when I saw it last. It laid around the place quite a while.

Deposition of Herschel Caverly

X. Int. 45. Has it been lost or destroyed?

Ans. I think it has.

X. Int. 46. Where did your father make that 1871 machine that was made in accordance with the machine showed in the patent?

Ans. I couldn't say.

X. Int. 47. Do you know where the other machines were made?

Ans. They were made in Moline, but I can't say at what shop.

X. Int. 48. Where did you see the 1871 machine?

Ans. At home.

X. Int. 49. And following machines?

Ans. I never saw any of them only at home.

X. Int. 50. Do you know of anybody outside of your own family that ever saw that 1871 machine after it was built?

Ans. I don't think I do.

X. Int. 51. Did your father ever operate any of those machines?

Ans. He operated the first one at home by hand.

X. Int. 52. Was the room where such machine was placed ever entered by anyone except your own family?

Ans. Never forbid anybody going in there that I know of. Still we did not make a house-warming when we were trying the machine.

X. Int. 53. How long was that 1871 machine in the house?

Ans. I think he sold it for scrap-iron about the time he made the one for 1874.

244 X. Int. 54. What room in the house was it kept in?

Ans. It was not in the house.

X. Int. 55. Where was it?

Ans. He had a little shop in connection with the barn at that time.

X. Int. 56. Others than members of your own family visited that shop between 1871 and 1874, didn't they?

Ans. Don't know that they did.

X. Int. 57. And yet you state that it wasn't a place where special pains were taken to keep folks out of. It is therefore likely isn't it that during those 3 years that machine was seen by outsiders?

Ans. They was very careful not to have it seen. Father cautioned us children several times not to say anything about it till it was completed.

X. Int. 58. I thought you said it was just like the patent. Don't you consider that patent shows a complete machine?

Ans. It looked just like the patent to me.

X. Int. 59. And the other machines that he made looked the same, didn't they?

Ans. They all looked the same to me.

X. Int. 60. Did you ever have to help him operate the 1871 machine when he wanted to work it?

Ans. I didn't help to operate the 1871 machine.

X. Int. 61. State who did help him and how it was operated?

Ans. It was one of the other boys. It was operated when I was at work.

X. Int. 62. Did you ever see any work that he did on it?

Ans. I did not.

X. Int. 63. You didn't pay very much attention to it, did you?

Ans. I did not to that machine.

X. Int. 64. Which machine did you pay any particular attention to?

Ans. To the machine of 1874.

X. Int. 65. And that 1874 machine was like the patent according to your best recollection?

Ans. It was.

Int. 66. Did you ever help operate that machine?

Ans. I did.

X. Int. 67. What did you do?

Ans. I turned the crank to run the drive-wheel.

X. Int. 68. And your father then dressed a plow handle on it?

Ans. He attempted to but the power was not enough to satisfy his desire.

245 X. Int. 69. If there had been sufficient power then you think the handle could have been dressed?

Ans. I was told it proved so afterwards.

X. Int. 70. Did he afterwards run it by power then?

Ans. He did.

X. Int. 71. When?

Ans. Along in 1875.

X. Int. 72. Where?

Ans. I think it was in Deere & Co's, tried it once there I know, and once in a shop known as Harris's jobbing shop.

X. Int. 73. The working of the machine then in such shops as you've mentioned must in the presence of quite a number of people at least, mustn't it?

Ans. It might have been, I was not present.

X. Int. 74. How long did he run it in those shops in 1875?

Ans. I think he only took it there for an hour or so to try it.

X. Int. 75. Between 1870 and 1880, did your father own his own home?

Ans. He was paying for it, I think he had it paid for before 1880.

X. Int. 76. How long before 1880 did he have it paid for?

Ans. In 1875 or 1876. He made several additions to the house from time to time between 1870 and 1880. I don't when the additions were all paid for.

X. Int. 77. Between 1870 & 1883 did he own any other real estate?

Ans. He never owned any other between that time.

X. Int. 78. He was a good mechanic and had plenty steady work, didn't he, from 1870 to 1878?

Ans. He was called a fair mechanic but his eye-sight failed him once in a while, he wasn't always working steady, some lost time.

X. Int. 79. Have you got any of those machines that he made?

Ans. None but the last one which was used by Deere & Co., for some time.

X. Int. 80. When was that machine made you refer to?

Ans. I think about in 1876, but am not positive.

X. Int. 81. Is that machine made in 1876 also like the patent?

Ans. As far as I could see it is.

X. Int. 82. How long did Deere & Co. use it?

Ans. I don't know.

X. Int. 83. Have you got that at home?

Ans. I haven't it. It is somewheres around. I have not kept track of it.

X. Int. 84. About when was it put into Deere & Co's shop?

246 Ans. I said I didn't know.

X. Int. 85. Was it before 1880?

Ans. Not that I remember of. I don't know whether it was before or after 1880.

X. Int. 86. But it was the machine made in 1876?

Ans I didn't say positive.

X Int. 88. Who put it in there, your father?

Ans. I don't think he did.

X. Int. 89. Was it put in with his consent?

Ans. It wasn't given to Deere & Co. with his consent.

X. Int. 90. Was it put in there with his consent?

Ans. I think he consented to its going there.

X. Int. How old are you?

Ans. I am going on 35.

Re-Direct Examination.

Int. 92. State substantially what the condition of your father's health was and his financial condition from 1868 to the date of his death. State as near as you can get at it, first state in regard to his health and then in regard to his financial condition?

Ans. His health at times was not good, but we never knew what was the truth until just before his death. His physician claimed there was a tumor in his stomach. As to the financial part, in consequence of his health bothering him sometimes, and family being large, kept him generally in poor circumstances.

Re-Direct Examination.

Int. 93. State whether he had any means including and after the year 1868 to support his family other than his daily wages or work, and that arising from attempts on his part early in the 80's to conduct a shop of his own, on a small scale. State what you know about it.

Ans. He had no means of support other than what he worked for including what little us boys could do.

Int. 94. His family was large, was it not?

Ans. He had eight children, 4 of them younger than myself.

Int. 95. State whether or not it is true as a matter of fact, that your father from 1868 up to the date of his death, and especially up to the fore part of the 80's, your father continuously was under a heavy burden for the want of means to support his
247 family?

Ans. He was.

Int. 96. State whether or not the delicate condition of his health during those years very seriously interfered with his ability to acquire money by his labor, or by any other means within his power.

Ans. It did.

Re-Cross Examination.

X Int. I understand that your father's health commenced to get considerably poorer along about 1880, and that he suffered more or less with poor health until his death in 1886. Is that correct?

Ans. It is.

X Int. 98. As I remember your brother's testimony given last winter, your father on account of his poor health didn't do very much work for 4 years before his death, and that in consequence, he was quite poor during those years, and left but very little estate. Is that as you understood the matter also?

Ans. It is. He didn't give up work entirely until about 6

Deposition of Herschel Caverly.

months before his death, although he was only able to do light work.

X Int. 99. Then as I gather from the testimony, he was probably poorer during the last 3 or 4 years of his life on account of his inability to do much work, than he was before his health began to fail him materially along about 1879 or 1880. Is that correct?

Ans. It is.

HERSCHEL CAVERLY.

Subscribed and sworn to before me, by the said Herschel Caverly, this 18th day of August, 1891.

SOLOMON E. KEAGLE,
Notary Public.

[SEAL]

Deposition of Ralph J. Caverly.

RALPH J. CAVERLY, witness for complainant, being first duly sworn, testified as follows:

Int. 1. State whether or not you are the same Ralph J. Caverly whose deposition was heretofore taken in this cause?

Ans. I am.

Int. 2. You always resided at your father's house up to the time he died, did you not?

Ans. Yes sir, with the exception of about 4 years, in which time I was home a portion of said 4 years in the winter and spring. I would be home occasionally during the summer, only 2 and 3 days at a time. Said 4 years began with the fall of 1879.

248 Int. 3. State what you know about what your father did during the years of 1878, 1879 and 1880.

Ans. Well, I think in 1878 he went West. I won't be positive what year, I think it was that year, and in 1879 I know he was working on a house in the lower end of our lot, I think he was finishing it, but I can't be positive. I think he was sick that year and didn't do much of anything that year. Come to think of it I know he went West in 1878. In the winter of 1880 I was attending school in Bloomington. I mean the winter beginning in 1879 and ending in 1880, therefore, I did not know what he was doing during that time, and after the spring term of 1880 I went to Peoria and was only home 2 to 3 days at a time, and only once or twice that summer.

Int. 4. Didn't your father open a shop on his own hook in 1879?

Ans. Really I don't remember. I know he started shops to

do buggy work several different times. I don't recollect whether he started one that date or not.

Int. 5. Did you ever hear or know of your father working for the Moline Plow Co. during 1878, 1879 or 1880?

Ans. I know he did not in 1878 & 1879, and I never heard of his working there in 1880, I rather think that in 1880 he worked either for Moline Wagon Co. or started in business for himself. I know at any rate that he quit work in the wagon company about that date to start business. Rather I knew of it.

Int. 6. While you were residing at your father's home, state whether or not you have any remembrance of your father's having constructed a wooden model which he claimed was designed to represent his said invention?

Ans. Yes, I have such recollection.

Int. 7. State the year and the season of the year in which said model was constructed?

Well, the model was in existence in the spring of 1870. There was a wooden head to which he adjusted steel or iron bits, in 1869, but he was constantly changing it, and therefor could not be described as having any given form with the exception that it was a head, cylindrical in form, composed of cylindrical disks having blocks or lugs on the side, one side of which formed beds for the cutter-knives, while the model spoken of as existing in 1870 has assumed a conventional form or rather embodied the princi-
249 ples which were to embody his invention and was kept as an object lesson while adjusting the minutia of machine.

Int. 8. You may give a description of the model which you say existed in the spring of 1870.

Ans. Well, it consisted of two cylindrical disks with a concave on their inner faces of such a description or character as when placed together or bolted together, they formed a groove in the center of the periphery with openings in the sides, sufficiently narrow to adjust a wooden knife, said openings widening towards the outer surface of the disk, on one side of said openings were lugs with an angle of about 45 deg. to the plane of the sides of the head, on which the wooden bits were adjusted through the openings into the groove in the periphry. The disks were somewhat thinner than in the machinery he made afterward. I recollect of there being 3 such wood knives in each disk, the end of the said wood knives representing the cutting edges of a machine, as near as I can recollect were in line with the diameter of the head through the shaft. This is all I can recollect of now.

Int. 9. Where were such openings or recesses to which you refer, and for what purpose were they?

Ans. Such openings or recesses were in the sides of the disks, diminishing in width as they passed through the groove, in the center of the periphry of the head, and evidently were meant to represent openings for the discharge of chips. I know it was intended to represent, or one side of such openings was to represent beds for the cutter knives in the machine to be made inasmuch as they had wooden bits adjusted thereto.

Int. 10. State whether or not you heard your father speak or refer to said model as intended to represent his invention of a plow handle dresser, or otherwise.

(Objected to as leading.)

Ans. I understood at the outset that he was constructing a plow handle machine for rounding the bent portion of handles, but later on, he spoke incidentally to the effect that it might be used for other work also, but understood most emphatically that he was constructing the first machine or machines for dressing plow
250 handles.

Int. 11. State whether or not you heard your father say that said model was designed by him to represent his invention for a plow handle dresser or otherwise?

(Same objection.)

Ans. It represented his invention for dressing plow handles.

Int. 12. I will now show you a model which complainant introduces as evidence on his part, marked "Exhibit E." You will please examine the same carefully, and then state what difference, if any at all, you find between the construction of the model which you have stated your father constructed or finished in the spring of 1870 and this model which I have just shown you?

(Objected to as incompetent and not calling for testimony of a rebuttal character.)

Ans. The disks might have been slightly thinner; in all material and substantial respects they are the same.

Int. 13. I will call your particular attention to the construction of the said model "Exhibit E," including the particular construction of the knife-beds on the outer sides of the disks composing the body of the model, and the particular adjustment of the knives to the sides and inner surface of the groove; also to the particular angularity of the knives to the plane and surface of the groove, and also to the particular construction of the openings or recesses, and to the shape and form of the groove, and to the con-

struction of the disks forming the body of the model, and after having so examined such particular construction of the model and the construction and adjustment of all of its component parts, including the particular adjustment of the knives to the inner surface of the groove, I will ask you whether or not you are able to find any difference between the construction of this model which has just been shown you and the construction of the model which your father constructed or finished in the spring of 1870, including the particular adjustment of all its component parts, including of the body of the model, the adjustment of the knife-beds to the outer sides of the disks, and the adjustment of the cutter-knives thereon, and the angularity of the cutter beds and knives to the inner surface and plane of the groove, and also the construction of the openings or recesses passing from the inner surface of the
251 groove and above the upper plane of the knives as channels for the free discharge of chips, and including the adjustment of the knives in all respects to the groove?

(Objected as incompetent and leading.)

Ans. I can find no difference.

Int. 14. I will ask you if you have a clear remembrance of the model existing in the spring of 1870, and of its construction?

Ans. Yes sir.

The taking of testimony is adjourned to August 19, 1891, at 8 o'clock A. M.

S. E. KEAGLE,
Notary Public.

Int. 15. You stated in one of your previous answers something about your father having constructed a model of his said invention in the year 1869, in which iron or steel knives were inserted with a view of making experiments. You may state what difference, if any at all, between the construction and adjustment of the component parts of the 1869 model and the construction and adjustment of the component parts of the model of the spring of 1870. If there was at all any such difference, please state the same?

Ans. They were the same in all respects, only that the angle in the knife was changed from time to time.

Int. 16. For what purpose did your father change the angle in the knives in said model, whether for experimental purposes or otherwise?

Ans. For experimental purposes.

Int. 17. State whether or not during the experiments made

Deposition of Ralph J. Caverly.

by your father in the 1869 model he, at times at least, had the knives adjusted to the groove in the same manner of the adjustment of the knives to the groove in the model of the spring of 1870: state the facts in this respect?

Ans. Yes, a portion of the time he had them the same as in the model of the spring of 1870.

Int. 18. State whether or not you have a clear remembrance with respect to the construction of the 1869 model?

Ans. I have.

Int. 19. State what you know about your father having constructed a machine in 1871, intended by your father to represent and embody his said invention for dressing plow handles?

Ans. I know that he constructed a machine in 1871, and I 252 brought the castings for said head from the foundry in the spring of said year.

Int. 20. State, if you know, whether or not your father constructed a machine for dressing plow handles with the castings you speak of, and by constructing all the several component parts necessary to fully complete a machine upon the plan of his said invention; state what you know about the subject of inquiry.

Ans. Yes, he did. I heard him say repeatedly, "I have got the principle, but I wish to adjust the same, and perhaps something may suggest itself for improving the fixtures of the machine. There is always room for improvement."

Int. 21. State whether said 1871 machine was composed of metal including the knives adjusted to the same?

Ans. It was.

Int. 22. Of how many parts did the body of the machine consist?

Ans. Of 2 parts.

Int. 23. State whether or not they were in the shape and form of cylindrical disks?

Ans. They were.

Int. 24. State what, if any, carving was done on each of said disks, and for what purpose?

Ans. Yes, the holes were carved in the sides for the discharge of chips, and the adjustment of the cutter-knives.

Int. 25. State what you mean by holes, whether you mean recesses and openings or simply round holes bored in; please explain.

Ans. I mean cavities or openings as in complainant's "Exhibit E."

Int. 26. Please give general description of the 1871 cutter-head, and a particular description, if you can.

Ans. The head spoken of consisted of 2 cylindrical disks, with such concave on their inner face, that when placed with their faces together, they formed a groove in the center of the periphry, the shape of the upper or lower side of the bent portion of dressed plow handles. Said disks were each respectively provided with lugs on the outer side of the disks for the adjustment of the cutter-knives. The disks were provided with narrow openings on
253 the inner face of the disk flaring outward toward the outer face of the disk; one side of said openings being the lugs for the adjustment of the cutter-knives.

Int. 27. For what purpose was that part of the openings you referred to opposite the knives and cutter-beds designed.

Ans. For the free discharge of chips, so that the chips would pass over the knife, generally that would depend somewhat on the velocity, as to whether it passed over the whole length of the knife, as I understood it.

Int. 28. State whether or not there was any difference between the construction of all the several component parts of said 1871 machine, including the adjustment of the knives to the groove, and also including the construction of the knife-beds, upon the outer sides of the disks, and the adjustment of the knives thereon, and also including the particular angularity of the knives to the knife-beds to the inner plane and surface of the groove, and to the material to be dressed thereon, and also including the position and construction of the openings or recesses for the discharge of chips and shavings, and also the general shape and construction of the groove, and the particular construction of all the component parts in the model of the spring of 1870, as heretofore described and referred to in your testimony, and if you find any difference at all, please state the same.

Ans. I can find no difference whatever.

Int. 29. I will call your attention to complainant's machine "Exhibit A" heretofore introduced in evidence, and you will please examine the same, and the particular construction of all of its component parts, including the adjustment of the knives and knife-beds, and the openings and recesses for the discharge of chips, the angularity of the knives and knife-beds to the cutter-head and to the groove, and inner surface thereof and to the form of the groove, and to the method in which the disks are secured together, and after having so examined the same, state what difference, if any at all, between the construction of said Exhibit "A" and the construction of the 1871 machine?

Ans. The 2 machines were materially and substantially alike in all respects spoken of in your question. The machine of 1871

Ralph J. Cassly.

may have had its disks bolted together rather than put together with set screws and there was no continuous flange extending
254 from the periphry of the disks upon the outer faces of the disks, being more like "Exhibit E" in that respect.

Int. 30. State what particular event, if there was any such, happening in the fall of 1871, which enables you to fix the date of the construction of said machine?

Ans. Yes sir, the great Chicago fire.

Int. 31. So I understand you to mean that you have a clear remembrance that said 1871 machine was constructed prior to the Chicago fire?

Ans. Yes sir.

Int. 32. State what machines your father made intended by him to embody his said invention from and after the year 1871, up to and including the year 1876?

Ans. He made one in 1873 & 1874, or what proportion of said machine he constructed in each year I can't say, and one in 1876. I won't be positive that he made any machines between 1874 & 1876.

Int. 33. State whether or not the construction of each severally of said machines were in all respects materially and substantially the same as the construction of the machine of 1871, except perhaps some slight modification in dimensions as to length, breadth & thickness, and some slight experimental modifications?

Ans. They were.

Int. 34. State whether or not, particularly from and after the year 1871, your father began to more especially make various experiments with his machines involving the particular adjustment of the cutter knives, and other adjustments? State according to your knowledge of the subject matter of inquiry.

Ans. Yes, he did.

Int. 35. State in what manner he proceeded to experiment?

Ans. He experimented somewhat in the strength of the machine.

Int. 36. Well, with respect to what other points did he experiment?

Ans. He experimented some on throwing the knives under, that is, the lineal edges near the shaft were thrown under so as to create somewhat of a draw cut; he also experimented in adjusting the knives in various ways so as to leave a rib, or rather an undressed portion upon the handle to prevent the wood from being cut away, so to ascertain more especially how small such rib could be made and prevent the wood from cutting away. He also experimented on allowing the points of the knives drop below

the surface of the groove in the periphry just before touching
255 the disk at the opposite side, so as to leave the handle sufficiently smooth to go to the paint shop, without any further dressing. He finally settled on his first machine as best for the adjustment of the several parts.

Int. 37. State whether or not your father, after going through the whole round of said experiments in connection with his said invention, finally returned back to the point from whence he first started, and finally adopted the particular features of this invention as originally conceived by him, and so far as they were embodied and expressed and represented in his original models of 1869 and of the spring of 1870?

Ans. He did.

Int. 38. Do I understand by the use of the phrase "the spring of 1870," you mean and include the ordinary calendar spring months of March, April and May?

Ans. Yes sir.

Int. 39. You may state now what was really the primary cause of the delay of your father in procuring a patent for his said invention?

Ans. Financial pressure.

Int. 40. State to what extent, if at all, such financial pressure or embarrassment was due to the delicate state of health of your father to a greater or less extent, during those years of delay, in finally procuring his letters patent?

Ans. It was due quite considerably to his ill-health. When he worked at all after 1873, he was obliged to work for less than the average wages of mechanics on account of the state of his health, and he in 1878 was at considerable expense in taking a trip West for his health, and he had doctor bills, and spent quite considerable for medicine right along.

Cross-Examination.

X Int. 41. Are we to understand, then, if your father's financial condition had been better, the application for the patent would have been made sooner?

Ans. I think had his financial condition been better, he would have discovered sooner that he could hardly have improved on the model of 1869, and consequently no doubt would have made application sooner.

X Int. 42. How long after 1869 did he become satisfied that his models of 1869 & 1870 and his machine of 1871 embodied
256 his invention in the best form?

Ans. I cannot say, but I heard him say inasmuch as he

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hadn't the money to procure a patent, he would not allow the machine to go into public use, and he might become better acquainted with the best heft of the machine to do the work required by said machine.

X Int. 43. When did he say that?

Ans. Often and frequently from the time of his first model down to the date of his application.

X Int. 44. He used to say that to you?

Ans. He said it to my mother in my presence.

X Int. 45. When did you last see the so-called 1869 & 1870 models, or either of them?

Ans. I think the model made in 1869 disappeared pretty soon after his getting out his first machine. It might have been round some 3 or 4 years. I don't recollect the last time I saw either of the models.

X Int. 46. When did you last see the so-called 1871 machine?

Ans. I think it was about the time the bill for the castings of the second head was presented that it was sold for old iron, to go in partial payment for the new head.

X Int. 47. As long as we don't know anything about that bill that you refer to, will you please answer the question with respect to some date?

Ans. I cannot give the date.

X Int. 48. Give the year?

Ans. Well, I presume it was in 1875.

X Int. 49. You have stated, as I understand you, that the so-called models of 1869 & 1870, and the cutter-head of 1871, were alike in all material and substantial respects, and that the construction of all 3 of those devices is fairly represented by complainant's Exhibit "E." Is that correct?

Ans. It is.

X Int. 50. Who made Exhibit "E," and what was it made for, and when?

Ans. The exhibit was made by my request. I gave all the particulars as to construction, and I think my brothers, as far as they recollected, done the same. Mr. Nash then had it made, I do not know by whom. It was made since last taking depositions in Deere & Co.'s office in this cause.

257 X Int. 51. Do I understand that you have no information as to who made it, I mean in any particular shop, if you have no more definite information than that?

Ans. I simply know the shop in which the turning was done. It was then shown to me and asked how it corresponded with the

model it was made to represent so far as it had been constructed. I suggested changes in the turning in the sides of the head to make it conform with my idea of the model it was made to represent. Where such additional turning was done, I do not know.

X Int. 52. What model was it made to represent, and what shop have you reference to in your last answer?

Ans. I told you at what shop such additional turning was done I did not know.

Int. 53. What was Exhibit "E" made to represent?

Ans. As I told you in one of my previous answers, it was made to represent a model made or in existence in the spring of 1870.

X Int. 54. At whose shop was the original turning of Exhibit "E" done?

Ans. At the shop this side of the power station owned by Mr. Kremer.

X Int. 55. You refer to Mr. Kremer who testified here the other day?

Ans. Yes sir.

X Int. 56. Previous to making that Exhibit "E." do you know whether he had seen "Exhibit A?"

Ans. I do not know.

X Int. 57. Which was made first, "Exhibit A" or "Exhibit E?"

Ans. Exhibit "A."

X Int. 58. You are pretty familiar with the specifications and drawings of the patent in suit, are you not?

Ans. Well, I have read them. I can't say that I am an expert.

X Int. 59. You have been present during all the taking of testimony since Tuesday, Aug. 11, have you not?

Ans. Not continuously.

X Int. 60. About the only times that you were absent were for a few minutes each time, when you went out to get paper for the notary, and possibly one or two other times when you stepped out for a few moments. Isn't that substantially correct?

Ans. Yes.

258 X Int. 61. Exhibit "A" & Exhibit "E" are substantially alike except that one is of metal and the other wood, isn't that so?

Ans. That's true.

Int. 62. You have heard the depositions given of a number of experts to the effect that "Exhibit A" was made in accordance with the patent in suit, have you not?

Ans. I have.

X Int. 63. Then from your own knowledge of the patent, and from the opinions you have heard given, you are satisfied, are you not, that "Exhibit A," "Exhibit E," the machine of the patent, the alleged models of 1869 & 70, and the cutter-head of 1871, are all alike in every essential particular?

Ans. I have not based my opinions upon the testimony of experts. I have simply told facts as I know them to exist, and to have existed.

X Int. 64. Well, you have sworn that the 1869 & 1870 models and the 1871 machine are correctly represented by "Exhibits A" & "E." Now will you please state whether or not those models and the 1871 machine are not also described and shown in the patent?

Ans. Yes sir. I can see their counterparts in the drawings of the patent.

X Int. 65. Where did your father keep that 1871 machine?

Ans. At home in Moline.

X Int 66. Did he ever operate it to any extent?

Ans. If by the term "operate" you mean to make work to put upon the market, I would say no, but if you mean experimental use, I will say yes.

X Int. 67. Was it defective in its construction?

Ans. The disks were considered too thin to stand the number of revolutions per minute he thought necessary to accomplish the best results.

X Int. 68. It was operated by hand power applied to a crank, and therefore made comparatively few revolutions. Is not that so?

Ans. I rather think it was. At least I know some of the machines were so run.

X Int. 69. Did anybody outside of the family ever help him run that machine?

Ans. I never knew of any helping him outside of the family.

X Int. 70. When he made his next machine, in 1874 & 75, did he make the disks heavier?

Ans. I think he did.

X Int. 71. And he also run that machine in the same manner that he did the first one?

Ans. I think he ran each of them by hand power.

259 X Int. 72. And the next machine, the one made in 1876, was also run in the same way?

Ans. It was.

X Int. 73. These 3 machines, as I understand you, were alike in all substantial and material respects?

Ans. They were.

X Int. 74. When did your father first run a machine like those that you say he built by power?

Ans. I am a poor hand to remember dates, but he tried several machines at several different places at different times. He tried one at one time at Harris' shop in Moline. I was not present, and only knew that he took one there. He took a machine several times to the Moline Plow Co. to try, and once at least at Deere & Co.'s. I am thinking now of these 3 several machines as being taken at different times to these places mentioned, but when each one was taken I cannot say. They were not run over half an hour at a time at any of these trials. I was never with my father when he tried them at any of these factories.

X Int. 75. Were those machines so taken to the factories for trial before your father went West for his health in 1878?

Ans. I rather 2 or 3 of the trials were, one of them may have been after.

X Int. 76. Did you hear my cross-examination and re-cross examination of your brother Herschel, and if so, I will ask you whether you agree with him in all the statements that he made relative to your father's financial condition?

Ans. I heard the cross-examination and re-cross examination, and can't say that I recollect all that was said on the point of my father's financial condition, what I stated in my evidence upon that point has been only such things as I remember myself regarding the same. Herschel's memory might retain some things that mine did not, as regards my father's health at particular seasons of the year, but I could not contradict them. Generally I will state that father's health was poor during the time specified, and I do not consider it exaggerated in my brother's testimony.

X Int. 77. Your brother Herschel stated that your father's health commenced to get considerably poorer along about 1880, and that he suffered more or less with poor health until his death in 1886. Do you agree with him in that?

I do, so far as I was home to see.

X Int. 78. He also stated his understanding to be that your
260 father didn't do very much work for 3 or 4 years before his death, and that in consequence he was quite poor and left but very little estate. Do you agree with that statement?

Ans. I do.

X Int. 79. He also stated it was true that your father was probably poorer during the last 3 or 4 years of his life, on account of his inability to do much work, than he was before his health began to fail him materially, along about 1879 or 1880. Do you also agree with that statement?

Deposition of Ralph J. Caverly.

Ans. I undoubtedly do, for if you take his debts into consideration he would have been several hundred dollars worse off than nothing.

Int. 80. You may state what you know about the 2 or 3 machines constructed by your father from and after the year 1871, being more or less designed for experiment or experimental machines and contained some more or less experimental modifications. State what you know about the matter.

Ans. I know that they were experimental machines.

Int. 80. State whether or not any machine or specimen of your father's said invention was ever used by Deere & Co. with your father's consent or allowance.

Ans. There was not. There was a machine used, but it was not with my father's consent, but after the issuing of the letters patent.

Int. 81. State whether or not any machine or specimen of your father's invention, in any manner, further than simply experimentally, prior to the spring of 1882 was ever used?

Ans. No sir, there was not.

Int. 82. You may state how your father finally obtained the money to pay the application fees to procure letters patent for his invention?

Ans. Well, I contributed some and my brother Herschel 261 some.

RALPH J. CAVERLY.

Subscribed and sworn to before me, by the said Ralph J. Caverly, this 20th day of August, 1891.

SOLOMON E. KEAGLE, (Seal.)
Notary Public.

Deposition of Thos. H. Caverly.

THOMAS E. CAVERLY, witness for complainant, being first duly sworn, testified as follows:

Int. 1. What is your name, age, occupation and residence?

Ans. My name is Thomas E. Caverly, my age is nearly 29 years, my occupation is printer, and I reside in Rock Island, Ill.

Int. 2. State whether or not you are a son of Amos K. Caverly, deceased.

Ans. I am.

Int. 3. Up to what time did you reside at your father's home?

Ans. I resided there till he died, and after that until June 6, 1889, with my mother.

Int. 4. State whether or not you have any remembrance of your father speaking about his having invented a plow-handle dresser?

Ans. I have.

Int. 5. State what, if any, remembrance you have about your father having constructed a machine in the year 1871, which he claimed to embody and represent his said invention?

Ans. Yes sir; I have such remembrance. I helped him in turning grindstone to grind the bits that went into the machine in the fall of 1871.

Int. 6. Please give as particular description of the machine thus constructed by your father in 1871.

Ans. The machine was composed of 2 iron disks bolted together with space between the two where they were bolted in the shape of a plow handle, with bits going in from the outsides through the disks. It was all made of metal and they were fastened on a shaft.

Int. 7. State whether or not there were knife-beds constructed and fastened on the disks and knives secured to the same.

Ans. The bits or knives—there were six of them—were fastened to lugs or knife-beds, which were cast with the disks on the outside and presented a smooth surface, so that the bits when fastened presented the appearance of a plane.

Int. 8. At about what angle were the knives and knife-beds to the groove?

Ans. At about the same angle of a common hand-plane.

262 Int. 9. State whether or not there were openings or recesses in front of the knives?

Ans. There were openings to allow the shavings to come out.

Int. 10. I will call your special attention to complainant's "Exhibit A," which you will please carefully examine, and I would specially call your attention to the knife-beds on the outer sides of the of the disks composing the body of the machine, and the particular adjustment of the cutter-knives on such cutter-beds, and also the adjustment of the cutter-knives to the inner surface of the groove; also to the angularity of the knives to the plane and surface of the groove and to the material being dressed, and also to the particular construction of the openings or recesses for the discharge of the chips and shavings, and after having thus examined the construction of the different component parts of the machine, you may state what difference, if any at all, there was between the construction of the said machine "Exhibit A" and the construction of the machine which you have testified your father constructed in the year 1871.

Deposition of Thos. E. Caverly.

Ans. There is no difference in the construction of the knives or their position, nor in the grooves, nor in any of the workings or cutting parts. The only difference I see is that this machine "Exhibit A" is more workmanlike than the one constructed in 1871.

Int. 11. Do you mean to be understood, then, that the machine "Exhibit A," and the construction of the same in all of its parts, are just the same as the machine and the construction of the 1871 machine, except to the mere finish of the workmanship? Is that your meaning?

Ans. It is exactly.

Int. 12. State whether or not you have any remembrance of your father having constructed, previously to 1871, one or two models of his said invention?

Ans. Yes sir, I remember of his making patterns for these castings of this machine of 1871.

Int. 13. State whether or not your father constructed, after the year 1871, up to and including the year 1876, other machines and specimens of his invention?

Ans. I do.

Int. 14. About when do you remember of seeing the first machine after 1871?

263 Ans. I don't know exactly what time I seen that machine completed, but he began to work on it in the winter of 1871 & 1872.

Int. 15. Was that the first machine that your father completed after he constructed the first machine in 1871 of which you speak?

Ans. Yes, it was.

Int. 16. When did he make the next machine?

Ans. I don't know the exact date.

Int. 17. Well, state the year as nearly as you can?

Ans. In 1875 or 1876.

Int. 18. State whether or not your father made any experimental trials of said machine subsequent to the 1871 machine?

Ans. He did.

Int. 19. State whether or not there were in these subsequent machines some more or less experimental modifications in the construction of the same?

Ans. Yes, there was.

Int. 20. State whether or not you have a clear remembrance of the 1871 machine and of the construction of the same?

Ans. I have.

Int. 21. State whether or not these machines were used for any other than simply experimental purposes?

Deposition of Thos. E. Caverly.

Ans. They were not.

Int. 22. You may state the general financial condition of your father's, and of the state of his health from 1870 to the date of his death?

Ans. He was poor financially, and his health was bad. He never was hale or hearty.

THOMAS E. CAVERLY.

Subscribed and sworn to by the said Thomas E. Caverly, this 20th day of August, 1891.

SOLOMON E. KEAGLE, (Seal.)
Notary Public.

Deposition of Thos. W. McClelland.

THOMAS W. MCCLELLAND, witness for complainant, being first duly sworn, testified as follows:

Int. 1. What is your name, age and residence?

Ans. My name is Thomas W. McClelland; my age is 60 years, and my residence is 121 East 6th Street, Davenport, Iowa.

Int. 2. How long have you been in the mechanics business?

Ans. About 40 years.

Int. 3. What manufacturing establishment are you conducting?

Ans. Sash and door factory on Main St. I have been there about 28 years.

Int. 4. State whether or not you consider yourself as master 264 mechanic, and as such have both a theoretical and practical knowledge of mechanics?

Ans. I have a practical knowledge of wood-working & building, & general knowledge of machinery, tools and their uses.

Int. 5. Your attention is now called to this machine which I now show, being complainant's "Exhibit A," heretofore introduced in testimony, and your attention is especially called to the particular construction of the knife-beds and the knives secured thereon, and the angularity of the beds of knives to the inner surface of the groove, and also to the openings or recesses in front of the knives passing out from the grooves up over the upper surface of the knives and outwards, for the easy discharge of chips and shavings and the construction of the body of the cutter-head as being in 2 parts secured together, and after having thus examined the construction of said machine, I will call your attention to these 3 several machines or exhibits, the same being defendant's "Exhibit Grand De Tour Cutter-Head," defendant's "Exhibit Moline Plow Co. Cutter-Head, and defendant's Exhibit Louisville Head," and I will call your attention to the plan on which each one of these 3

Deposition of Thos. W. McClelland.

several machines is constructed, and to the particular construction of each one of the several component parts of each of 3 said several machines, and after having thus examined the same, I will ask you whether or not, in your opinion, you find there is a difference between the construction and plan of construction of each one of these said 3 machines, and the construction of said "Exhibit A" and the plan thereof?

Ans. There is a great difference in the plan and construction. These old machines are like flint-lock musket compared to the improved percussion-cap musket.

Int. 6. State whether or not, in your opinion, such difference is a material and substantial difference?

Ans. It is.

Int. 7. State whether or not, in your opinion, it would require the exercise of invention and the exercise of the inventive faculties for a mechanic or machinist having competent knowledge in his calling and skill and in view of the state and condition of the art and having had before him for examination these 3 several machines or "Exhibits" above shown you, and not having any previous knowledge of the machine "Exhibit A" or its construction to construct said machine "Exhibit A?"

265 Ans. It certainly would require skill and the exercise of inventive faculties to produce this improved "Exhibit A."

Int. 8. I will now show you this model "Exhibit E," and please examine the particular construction of all of its component parts, and after having examined the same, I will ask you whether, in your opinion, the construction of said model in all of its component parts and as a whole is in all respects identical with the construction of said "Exhibit A."

Ans. It's a model or pattern of "Exhibit A."

T. W. McCLELLAND.

Deposition of Laurence W. Larson.

LAURENCE W. LARSON, witness for complainant, being first duly sworn, testified as follows:

Int. 1. What is your name, age, occupation and place of residence?

Ans. My name is Laurence W. Larson, my age is 30 years, and my trade is photographer, and my residence is Moline, Ill.

Int. 2. I will show you these 2 several photographs which complainant introduces as evidence on his part in this cause, and marked respectively Exhibits "F" and "G," and after having examined the same, please state if you know who made the same?

Ans. They were taken by myself on the 3rd day of July, 1891.

Deposition of Laurence W. Larson.

Int. 3. You may state at what place or in what manufacturing establishment, if any, you took said photographs?

Ans. At Deere & Co.'s shops, Moline, Ill.

Int. 4. State whether the machine represented in said photographs were set in a frame for work just as shown in the photographs at the time the photographs were taken in said shops of Deere & Co.?

Ans. They were.

Int. 5. State who was present when said photographs were taken besides yourself?

Ans. D. B. Nash and C. H. Pope.

Int. 6. State whether or not the upright frames and rests appearing in the photograph in rear of the cutter-heads as they appear in the photograph, were located very near to the cutter-heads and apparently constituting rests upon which the operator rested and steadied the material being dressed?

Ans. Yes sir.

LAURENCE W. LARSON.

Deposition of Vesta E. Caverly.

VESTA E CAVERLY, witness for complainant, being first duly sworn, testified as follows:

266 Int. 1. What is your name, age, and residence?

Ans. My name is Vesta E. Caverly, my age is 43 years, and my residence is near Moline, Ill.

Int. 2. You are one of the children of Amos K. Caverly, are you not?

Ans. I am.

Int. 3. You are a sister of Herschel Caverly, complainant for this cause, are you not?

Ans. I am.

Int. 4. You always lived at your father's home, did you not, until the time of his decease?

Ans. I did.

Int. 5. About what is the earliest time that you heard your father talk about an invention he had made?

Ans. In the winter following the fall of 1868.

Int. 6. How do you remember the date particularly?

Ans. It was the winter following the fall of the year in which we moved into the new house.

Int. 7. State whether or not you associate the time of your father's speaking of his invention with the fact of your father's moving into his new house?

Ans. I do.

Int. 8. State what you heard your father say was his invention and its purpose and object?

Ans. It was a handle dresser for dressing plow handles. That's what he called it, he had the handles there when he was trying it.

Int. 9. State whether or not your father often spoke about his invention?

Ans. Yes sir; he used to talk considerable about it, what it would do, what it would save and how much it would make.

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Int. 10. State whether or not you have any remembrance of your father having constructed a model of his said invention in the spring of 1870?

Ans. Yes sir. He tried it in the basement fixed to a rude frame and turned it by hand.

Int. 11. State whether or not you have a clear remembrance of how such model looked and appeared?

Ans. Yes sir.

Int. 12. I will ask you whether or not you have a clear remembrance of the date of the construction of said model by your father, and if so, state what that date was?

Ans. In the spring of 1870.

Int. 13. State what year it was, and what time of the year that he tried this machine?

Ans. It was in 1870, and in the month of June.

Int. 14. I will ask you at what place did he try this machine?

Ans. In the basement of our house.

Int. 15. I will call your attention to this model which I now show you being complainant's "Exhibit E" and carefully examine the same and the construction of all of its component parts, and after having examined the same, I will ask you whether there is any difference between the looks and appearance of said model, including its particular construction as a whole, and as to its component parts, and the model constructed by your father as you have testified, in the spring of 1870, and if so, state the same.

Ans. I don't think there is any difference in the two models. They look the same to me. The knives were put in just like this model. It had lugs just like this and bits just the same, and slots in the bits.

Int. 16. Then I understand you to say, that you find no difference between the looks and appearance of said model "Exhibit E" and the particular construction of the same, and the looks and appearance of the model constructed by your father in the spring of 1870, and the particular construction of the same. Am I right?

Ans. Yes sir.

Int. 17. I will call your attention to complainant's "Exhibit A" which you will please examine, and then state whether or not, what if any difference at all there is between the looks and appearance of such exhibit, both as a whole and as to all its component parts, and the said model of the spring of 1870, and its con-
268 struction as a whole, and as to its component parts?

Ans. I see no difference.

Int. 18. State whether or not in the year 1869, you know of your father having constructed any model of his said invention?

Ans. Yes sir, I saw the parts of the machine and saw them after they were fastened together.

Int. 19. You will state whether or not there was any difference in the looks and appearance of such machine or model after having been put together and constructed, and the looks and appearance of the model constructed by your father in the spring of 1870.

Ans. There was no difference.

Int. 20. I will ask you to state whether or not there is any difference between the looks and appearance of said model of 1869, as you saw it constructed, as you have testified, and the looks and appearance of said model "Exhibit E" which has been shown you.

Ans. There is no difference.

Int. 21. State whether or not you know of your father having constructed 2 or 3 machines from and after 1871, up to and including 1876.

Ans. Yes, he had 3 or 4 different heads made.

Int. 22. State whether or not he experimented with such heads or machines?

Ans. He did.

Int. 23. I will ask you to state what was the condition of your father's health from the year 1868 to the date of his death?

Ans. He used to complain a great deal, and during that time his sickness would altogether amount to 5 years.

Int. 24. State whether or not such sickness interfered with his ability to work.

Ans. It did.

Int. 25. He had a large family to support, did he not?

Ans. Yes sir. Eight children.

Int. 26. State whether or not your father had any means other than his work, to provide for his family?

Ans. He didn't have any.

Int. 27. I will ask you whether or not you heard any complaint made by your father with his respect to his not having sufficient means to pay the application fees for his said patent, prior to the time of such application?

Ans. Yes sir; I did a number of times.

269 VESTA E. CAVERLY.

Subscribed and sworn to, before me, by the said Vesta E. Caverly, this 21st day of August, 1891.

[SEAL] SOLOMON E. KEAGLE,
Notary Public.

Complainant produced as witness, in his behalf, BENJAMIN F. ALLEN, who, being sworn to tell the truth, and nothing but the truth and examined, testified as follows:

Int. 1. What is your name, age and place of residence?

Ans. My name is Benjamin F. Allen, my age is 60 years, and my residence is in New Albany, Floyd County, Indiana.

Int. 2. State how long you have been in the mechanical business, if at all?

Ans. About 30 years.

Int. 3. Please state in what department of mechanism have you been engaged?

Ans. In wood working.

Int. 4. State whether or not, in your said calling, you have had any occasion to use and become acquainted with wood-cutting machinery, including rotary machinery as well as plane, in the process of working and dressing various kinds of wood work.

Ans. I have.

Int. 5. You may state whether or not you regard yourself as being a master mechanic particularly in the department of mechanism above alluded to?

Ans. I do.

Int. 6. State whether or not you regard yourself as having both a theoretical as well as a practical knowledge in the department of mechanism above mentioned?

Ans. I do.

Int. 7. State whether or not you ever was employed, or worked for the Louisville Agricultural Works of Louisville, Kentucky?

Ans. I worked there in this way; in the manufacture of plow handles. I furnished the material, and they furnished the machinery.

Int. 8. State in what year it was that you was thus employed?

Ans. The latter part of 1879, and fore part of 1880.

Int. 9. Please state what machines you used in connection with your manufacture of plow handles.

Ans. I first used a machine to scallop out the under part of
278 the handles, called a scooping machine. I also used a machine called a rounder for forming the round of the handles. I also used a bending machine.

Int. 10. You may state whether or not, at the time you was thus engaged at work at said works, you acquired any information or knowledge as to whom it was that constructed the machine which you have above described as being the rounder of the plow handles?

Ans. I did acquire such information or knowledge.

Int. 11. You may please state the name of the person whom you understood as having constructed said machine?

Ans. I understood it to be a man by the name of Fletcher, who was employed at said works at the time I was working there as above mentioned. I have since learned that his name was Herman Fletcher.

Int. 12. You may state the source of information whence you learned that Herman Fletcher was the constructor of said machine.

Ans. Mr. Anderson, the president of the works, so informed me.

Int. 13. I then understand you to say and mean in your foregoing answers, that while you were at work at the shops of the Louisville Agricultural Works, the latter part of 1879, that Mr. Anderson, whom you then understood to be president of said works, informed you or gave you to understand that Mr. Fletcher, who was then at work for the said Co. was the constructor of the machine commonly called the plow-handle rounder, which you used in your said work, state whether or not such understanding is correct?

Ans. It is.

Int. 14. You have stated in your foregoing answers to the effect that in your business of manufacturing plow-handles for said Louisville Agricultural Works, that you used a machine to scoop or scallop the under part of the material intended to constitute the bent or neck portion of the plow handles, and also another machine called the plow-handle rounder, and also still another machine called the bender. You will please now state the particular process which you went through in the work of dressing or rounding the plow-handle, or that portion of it designed or intended to constitute the neck or the hand-hold of the handle.

position of
aj. F. Allen.

Ans. In the first place, there is a piece of wood designed
279 for a handle, the piece of wood is straight, that several of these pieces are placed on a table one on top of another, with the edges of the pieces to the machine, the back edges and ends being even with each other, they were then fastened by screw clamps attached to the machine, the table on which they were placed was a slide table, they were then pushed up to the machine and held there until the necessary depth of cut was made, which process formed the scallop designed to form the under part of the hand-hold of the handle. The next thing I did, I took the handle to the rounder, which I understood to be the Fletcher machine. I held the handle on top of the machine to dress the lower part of the hand-hold of the handle from the end towards me, and then held the handle on the under side of the machine to dress it towards the center of the curve in the under side of the hand-hold. It had to be done this way in order to prevent breaking out the swell of the end of the handle, and also to prevent the splitting or tearing the material at the other end of the curve. The handle was then taken to the steam box, and there steamed sufficiently to cause it to bend properly. It was then taken to the bending machine, there bent and put in stays to confine them to their bend; they were then left to become cold, and then taken out of the stays, and thence to the rounding machine again where the back part of the handle was first dressed, and then the under side was applied to the machine in the same way as before. On each side of the hand-hold of the handle there was left a large space that was not touched and dressed by the knives of the machine, and on the outer and inner curve of the hand-hold there was a large bead left which the machine would not remove, and varying in width from ⅛ to ¼ of an inch, and also the undressed space on each side varied from ½ to ¾ of an inch in width. In order to properly finish the handle and prepare the same for use, it was next taken to the work bench and dressed with a spoke shave and file.

Int. 15. I then understand from your foregoing answer, that the material to be worked was first scooped and scalloped, and then the handle thus being scooped and intended for the hand-hold of the handle, was taken to the rounding or Fletcher machine, and applied to the machine while the material was unbent, and dressed upon the machine in the manner you have stated, by
280 drawing the handle over the machine from the tip of the handle to the center of the scoop curve, and then the handle placed beneath the machine and applied to the same, by drawing the handle from the heel of the curve to the center thereof, and that this application of the handle to the machine, was made and

done in order to prevent the tearing and splitting both the end of the handle as well as the heel of the scoop curve, by the knives cutting against the grain of the wood. That after this process of applying the handle to the rounding or Fletcher machine, the handle was then taken to the steam-box and steamed thoroughly, and after being steamed, the handle was taken to the bending machine and then bent, then after bending they put in stays to remain until cold to prevent straightening back. That the handle was then taken a second time to the rounder, or Fletcher machine, and the upper portion of the arc of the hand-hold of the handle was applied to the machine, and then the under arc of such handle was applied in the manner above stated, namely, by applying one-half of the under part of the handle to the machine at a time in reverse order, in order to prevent breaking and splitting of the material. That in the process of applying the handle to said machine, there was left an undressed space on each side of the handle, varying from ½ to ¾ of an inch in width, and also a bead was left running over both the upper and under arc of the handle varying from ⅛ to ¼ of an inch in width, owing to the thickness of the handle, and that the handle was then taken from said machine to a work bench, and then the rough parts were taken off by a spoke-shave and wood-file, and finally finished for use. You will please state if my understanding of the matter is correct.

Ans. It is correct.

Int. 16. You may state whether or not, in your experience of the running operation of said Fletcher machine, you ascertained by actual experience, that such machine would in fact, splinter and tear the handle, as you have stated, unless the handles were applied to the machine in such a manner as to prevent the knives from cutting against the grain of the material. State according to the facts, and your experience in the operation of said machine.

Ans. I did ascertain that fact from experience.

281 Int 17. You may state whether or not, from your experience of the operations of said machine, you would regard it as practicable to dress a handle upon said machine, after the same had been scooped and bent in the rough, state according to you knowledge of the facts and your experience with the operations of said machine, and state the result of an attempt to dress such handle, according to your experience with the operations of said machine.

Ans. Such a handle could not be dressed on the Fletcher machine that would be fit for use, or ready for market. It would not be practicable to do so, and if a handle was applied to the machine so as to cut both ways towards the center of the scoop

Deposition of Benj. F. Allen.

curve, it would split and tear the material so as to destroy the handle.

Int. 18. You may state what would be the result in case an attempt was made to dress the hand-hold of plow-handles on said Fletcher machine, in any manner different from the mode of applying the material to said machine, both before and after bending, which was done by you?

Ans. Applying handles to the machine in any other way than I applied them would result disastrously to the material.

Int. 19. Your attention is now called to this tin-type purporting upon its face to be a picture of the casting of one side or disk of a rotary cutter-head. You will please examine the same, and after having so examined it, the same being the left-hand picture on said tin-type, you may state whether or not said picture has any resemblance to the one-half or one disk of the said Fletcher plow-handle rounding machine.

Ans. Said picture has a very strong resemblance to the side appearance or disk of the Fletcher plow-handle rounding machine.

Int. 20. You will please give as nearly as you can, a description of the construction of said Fletcher machine.

Ans. The Fletcher machine has two disks, three knives to each disk, between the disks is a parting plate, each of the disks has a separate lateral motion in the mandrel or shaft upon which it is hung. The steel plate has a separate lateral, as well as rotary motion. The diameter of disks from the outer edge to edge 282 is 7 7/8 inches. The width of the groove at the top formed by the disks is 1 1/8 inches, the depth of the groove from the center is about one inch, the knives are from 2 1/2 to 3 inches long, placed in a slot and secured by set screws in manner similar to that represented in the picture, and I might say in a manner identical to that represented in said picture.

At each end of the hubs of the machine, there is a socket extending into the hub towards its center of a depth of about 1/2 inch or little over, which socket or slot is formed for the purpose of receiving a wire spring coiled around the shaft or mandrel, over which wire spring an iron washer is adjusted, and the ends of the same pressed towards the center of the machine by means of a screw washer, when each spring is proper screwed up by the washers, the disks are brought in contact with each other, having a steel washer or plate between them. The machine thus constructed is ready for use The adjustment of the knives to the grooves is identical as represented in said picture.

Int. 21. State what motion, if any, said disks and washer or steel plate have or is liable to have in the process of working material on the same?

Ans. The disks would open or come together according to the size of the timber being dressed. When the disks were separated by the material being dressed, the steel plate or washer would follow one disk or the other, just as chance might happen, and the width of the bead on the handle would be according to the distance of separation of the disks.

(Complainant introduces said tin-type, and the picture of the left side thereof marked No. 1, which tin-type is marked Exhibit G, and made a part of this deposition.)

Int. 22. I will call your attention to complainant's "Exhibit A" of date July 9, 1891, and your attention is further called to the particular construction of said machine in all of its component parts, including the particular adjustment of the knives therein, and the beds of the knives, and the openings above the knives for the discharge of chips, and the depth of the groove, and state whether or not, in your opinion, in view of the construction
283 of such machine as you now see it, there is a difference between the construction of said "Exhibit A," and the construction of the machine mentioned in your deposition as the Fletcher Rounding Machine?

Ans. There is a great difference.

Int. 23. State whether or not such difference is a material difference, in your opinion?

Yes, there is a material difference. There is no similarity in the construction of the two machines.

Int. 24. State what, if any, difference there is between the adjustment of the knives to the groove in the Fletcher machine, and the adjustment of the knives to the groove in "Exhibit A?"

Ans. In the Fletcher machine, the knives are adjusted longitudinally upon the sides of the disks, and the upper sides of the knives, having a slight inclination towards the outer periphery of the side of the machine, and the cutting edges of the knives are so adjusted to the groove as to cut the material at the bottom of the groove, and the knives merely taking the corners off the handle, and the knives of the machine meeting the material at a very high angle, being about 60 deg. Whereas, the knives in "Exhibit A" are adjusted squarely into the groove at an angle of about 45 deg. The result is that in "Exhibit A," the knives cut at one and the same time, all parts of the handle as applied to the groove. The difference in the adjustment of the knives, in the two machines, constitute such a difference of the machines as to make them entirely dissimilar, and a plow-handle dressed on "Exhibit A," is a complete handle, but one dressed on the Fletcher machine was

Deposition of Benj. F. Allen.

only about half completed and had to be finished by hand. I also regard the openings in Exhibit A" for the easy discharge of the chips and shavings as a very necessary and important feature of the machine and is a distinguishing feature between it and the Fletcher machine. In the Fletcher machine on account of their adjustment to the groove the knives do not cut the material at the same angle continuously and hence a jolting and jarring is caused to the material being dressed, while in "Exhibit A" the knives are adjusted to cut as a plane and they all meet the material at the same angle continuously and the work is smoothly and even-

284 ly done.

Int. 25. State whether or not in your opinion a competent skilled mechanic having the Fletcher machine before him for examination and having no knowledge of the invention represented by said "Exhibit A" and in view of the general condition of the art could construct a machine in accordance with the principles represented by "Exhibit A" without the exercise of invention and of inventive faculties?

Ans. I think not.

Int. 26. State whether or not in your opinion the two machines namely said "Exhibit A" and said Fletcher machine could be regarded as having been constructed upon the same principles?

Ans. They could not be so regarded.

Int. 27. State whether or not, in your opinion, the principles of the two machines are so widely different as to constitute two distinct machines, state according to your opinion and knowledge of the subject matter of inquiry?

Ans. They are.

Int. 28. State whether or not you ever saw the plow-handle rounder that B. F. Avery is said to have used in about 1879 and sometime prior thereto in connection with the dressing of hand-hold of plow-handles.

Ans. I have seen the machine in operation.

Int. 29. You will please describe said machine as nearly as you can.

Ans. It appeared to me to be a solid cast head.

Int. 30. Your attention is called to the tin-type marked "Exhibit G," and the picture at the right marked No. 2, and after examining the same, please state what similarity there was between the said Avery machine, in general appearance, and the said picture No. 2.

Ans. There was a similarity between them. I would take it to be a cut of the Avery machine.

Int. 31. State whether or not you saw and examined the

work done on said machine, and if so, state what kind of work was done.

Ans. I saw and examined the work. It was not first-class, it had to be finished by hand. The work done on it was so poor that I heard George Avery complain of it, and he said he would have to get another machine.

Int. 32. Your attention is now called to each one of these several seven exhibits, numbered respectively 1, 2, 3, 4, 5, 6, and 7, and after having examined the same, you will please state to what class of handles, with respect to quality and perfection and finish each one of these several plow-handles exhibits belongs, referring especial to the crooked or neck portion of the handle.

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Ans. When I was in the business, they would all pass for No. 1 and first-class handles, and I presume they would now, I have seen handles from first-class establishments in Kentucky and Indiana, and other States, and these handles would be regarded as first-class handles in any establishment.

The examination of Banjamin F. Allen is resumed as follows:

Int. 33. When did you leave your working at the shops of the Louisville Agricultural Works?

Ans. In the fore part of 1880.

Int. 34. What did you then do?

Ans. I worked for Capt. Murray for a short time, and at intervals prepared to continue the manufacture of plow-handles.

In. 35. How long did you continue the manufacture of plow-handles after you quit work at the Louisville Agriculture Works?

Ans. From 12 to 15 months.

Int. 36. What machine did you use?

Ans. I used the Fletcher rounding machine.

Int. 37. State whether or not you mean by saying that you used the Fletcher machine, you used the machine constructed after the exact pattern of the Fletcher machine?

Ans. Yes, that is what I mean.

Int. 38. Who constructed said machine?

Ans. It was constructed at the shops of the Louisville Agricultural Works, while I was at work there.

(At this point appeared Mr. A. H. Adams, solicitor for the defendant, and objects to the entire foregoing deposition on the following grounds:

1st. Because at the time of the obtaining of

the order on Tuesday morning of this week enlarging the time for taking testimony. Mr. B. J. Hall. who appeared on behalf of complainant. stated to counsel for defendant. that he would. to accommodate counsel.

286 have the examination postponed to the following Friday. On Thursday. defendant's counsel was in Columbus. Ohio. and finding it impossible to reach Davenport by Friday. telegraphed counsel for complainant. D. B. Nash. asking for a further postponement until Saturday (to-day). and in reply to such telegram received a telegram reading as follows:

"I will wait for you. "D. B. Nash." The telegram is here produced to be attached to this deposition.

2nd. Because the examination as conducted is to a large degree leading.

3rd. Because it appears from said deposition that the witnesses knowledge of the machine. having been the Fletcher machine. heretofore testified about by defendant's witnesses. was gained only by hearsay.

4th. Because all the comparisons called for by counsel and made by the witness between the so-called Fletcher machine and complainant's "Exhibit A." are incompetent.

287 Int. 39. What is your name. age and place of residence?

Ans. My name is Banjamin F. Allen. my age is 60 years. and my place of residence is New Albany. Floyd County. Indiana.

Int. 40. How long have you been in the mechanical business. if at all?

Ans. About 30 years.

Int. 41. Please state in what department of mechanism have you been engaged?

Ans. Wood work.

Int. 24. State whether or not. in your said calling. you had any occasion to use and become acquainted with wood cutting machinery. including rotary machinery as well as plane in the process of working and dressing various kinds of wood work?

Ans. I have.

Int. 43. You may state whether or not you regard yourself as a master mechanic. particularly in the department of mechanism above alluded to?

Ans. I do.

Int. 44. State whether or not you regard yourself as having both a theoretical as well as practical knowledge in the department of mechanism above mentioned?

288 Ans. I did.

Int. 46. You may state under what arrangement or in what way?

Ans. To manufacture plow-handles.

Int. 47. On what terms was your arrangement?

Ans. I furnished the material, and they furnished the machinery for making handles, and I sold the handles to them by the piece at their market value, when they were bent and rounded.

Int. 48. State in what year it was that you were thus employed?

Ans. The latter part of the winter of 1879, and fore part of the winter of 1880.

Int. 49. About how many months were you thus employed?

Ans. About 6 months.

Int. 50. Please state what machines, if any, you used in connection with your said manufacture of plow-handles?

Ans. I first used a machine called a scooping machine for cutting the curve on the under side of the hand-hold, we then used a machine called a plow-handle rounder, we then used a bending machine.

Int. 51. State what part of the handle it was for the rounding or dressing of which you used said machines?

Ans. The top side and under side of the hand-hold.

Int. 52. Do I understand correctly that you mean by the word "hand-hold" what may be properly called the neck of the handle, or that portion of the handle which is taken hold of by the hands in plowing or other use?

Ans. That's what I mean.

Int. 53. State whether or not, at the time you were engaged at work at the shops of the Louisville Agricultural Works, you acquired any information or knowledge as to whom it was that constructed the machine which you have above described as being the rounder of the plow-handles?

Ans. I did.

Int. 54. You may please state the name of the person whom you understood as having constructed said machine?

Ans. A man called Fletcher.

Int. 55. State whether the man Fletcher, to whom you refer, was employed at the shops of the said Agricultural Works Co.

Ans. He was.

Int 56. In what capacity was he so employed?

Ans. Machinist.

289 Int. 57. State whether or not you understood said Fletcher

had been employed at said Agricultural Works for some years prior to 1879.

(Objected to as incompetent.)

Ans. I heard he had been employed there as machinist, but there was no time given about it.

Int. 58. Whom did you understand was the president of said Co. in 1879?

Ans. A Mr. Anderson.

Int. 59. State what, if any, information Mr. Anderson gave you as to the name of the person who constructed the plow-handle rounder you were then using.

(Objected to as incompetent.)

Ans. I couldn't say that Mr. Anderson gave me information, the machinist was known by the name of Fletcher through the shops.

Int. 60. State whether or not you had any conversation with Mr. Anderson, in which said machine was in any manner referred to.

(Objected to as incompetent.)

Ans. I had.

Int 61. You may what that conversation was.

(Same objection.)

Ans. It was in reference to the making of a plow-handle rounder for me, I wanted to buy the machine that was in operation there, and Mr. Anderson did not feel like parting with it, and proposed to make me one similar to it or one like it, and stated to me that the machinist in the shop had made the one that was used there.

Int. 62. Who was the machinist then in the shop?

Ans. I learned afterwards that his name was Fletcher. I knew his name was Fletcher, but afterwards I learned his first name was Herman.

Int. 63. Who then did you understand from your conversation with Mr. Anderson, was the person that constructed the rounding machine for rounding plow-handles, which you were then using?

(Same objection.)

Ans. Mr. Herman Fletcher.

Int. 64. Then I understand you to say and mean substantially in your foregoing answers, that while you were at work at the

shops of the Louisville Agricultural Works, the latter part of 1879. Mr. Anderson, whom you then understood to be president of the Co., proposed to build you a machine, if you desired it, in all respects like the said plow-handle rounding machine you were then using, and at the same time referred to the machinist then 290 employed by the Co. in the shops as being the person who constructed said machine, and that a man by the name of Fletcher, and whom you understood afterwards was Herman Fletcher, was the machinist then employed in the shops. Is my understanding correct?

(Objected to as incompetent and leading.)

Ans. It is.

Int. 65. You have stated in your foregoing answers to the effect that in your business of manufacturing plow-handles for said Louisville Agricultural Works, that you used three several machines belonging to said Co., namely, a machine to scoop that part of the material intended to constitute the bent or neck portion of the plow-handles, and also another machine called the plow-handle rounder, and also still another machine called the bender. You will please now state the particular process which you went through in the work of rounding or dressing the plow-handles, or that portion of it intended to constitute the neck or hand-hold of the handle?

Ans. We had a machine called the scooping machine, which cut the curve intended for the under part of the hand-hold of the handle: the machine by which the work was done has three knives, placed in a curve suitable to cut out the curve on the under part of the handle, there was a slide-table in front of the machine, upon which we placed about 8 handles, on top of each other flat ways, the back part of the handles and ends were even with each other, the handles were then clamped by two screw clamps attached to the table to hold them permanently together. The machine was then put in motion, and when in motion the table with the handles secured to it was then pushed to the machine until the curve was completed. The material was then taken to the rounding machine, and the edges that had been cut by the scooping machine, was applied to the rounder, that completed the under cut so far as the machine could do. They were then taken to the bending room, and were there placed in a steam-box, and kept there until sufficiently hot to be bent, they were then taken out of the steam-box, one handle at a time, and clamp irons placed on the handles, then applied to the bender, after being bent to the form of the curve of bending

291 machine, it was then hooked to keep it in its bent position until cold: when sufficiently cold it was taken out of the bending clamps or stays, thence back to the rounder, the back of the handle being placed to the rounder, the back of the handle was then rounded, then the crook or curve part of the handle was applied to the machine in order to take off any uneven surfaces that might have been made during the process of bending.

Int. 66. You have stated, in your foregoing answer, substantially that that part of the material intended for the hand-hold of the handle was first scooped by the scooping machine, and then the handle was taken to the rounding machine for rounding plow-handles, and that the same or that part of the material intended to constitute the under portion of the hand-hold of the handles was applied to and run over said machine. You will now state particularly the particular method of the application of the handle to the machine was accomplished.

Ans. From the scooping machine, it was taken to the rounder, and the curve side was there rounded off.

Int. 67. You will state whether or not there was any change made from one part of the machine to another as from the lower part to the upper part, in the process of applying the handle to the machine, or in other words, was the handle drawn over the whole scooping curve or partially so. State the fact as you remember it.

(Objected to as leading.)

The handle on the under side was drawn in the top of the machine, with the machine revolving toward the operator half the length of the curve from the end of the handles. It was then put under the machine and drawn from the inner end of the curve to the center again.

Int. 68. You may state for what particular purpose such particular method of applying the handle to the machine was used?

Ans. It was done in order to have the machine run with the grain of the wood, so that the handle would not be destroyed, that was the object.

Int. 69. You have also stated substantially in your forego-
292 ing answers, that after the handle had been passed over the rounding machine next after scooping, the same was steamed and bent upon the bending machine, and then taken a second time to the said rounding machine. You will now please state the particular manner in which said handle was dressed upon the rounding machine, when thus brought to the machine the second time and after bending.

Ans. The back of the handle was first put to the machine,

then the curve of the handle was applied, commencing at the end and running to the middle, the operator standing as before stated, and then the handle was put under the machine running from the back part of the curve to the middle as before stated.

Int. 70. State the object of applying one-half of the arc of the handle to the machine at a time, as you have above stated.

Ans. In order to prevent tearing the wood, by running against the grain, thus destroying the handle.

Int. 71. State whether or not, in this process of dressing the hand-hold of the handle, there were portions of the handle undressed or untouched by the knives. If so, state the particulars.

Ants. When the handle was passed through the machine, it came out in the shape of an octagon or eight square, leaving two undressed sides, and two undressed edges. The sides on the swell end of handle left about three-quarters of an inch of undressed wood, the middle being ½ inch narrower left about ½ inch of undressed wood, the top and bottom had from ⅛ to 2/8 inches of undressed wood.

Int. 72. After the handle was thus the second time run over the machine, where was the same taken, and what work or finish, if any, was accomplished upon the same?

Ans. It was then taken to a bench in the finishing room, and dressed with a spoke-shave and fine-cut wood-file.

Int. 73. You have stated substantially in the foregoing answer, that in the process of applying the hand-hold of the handle to the rounding machine, you took care to so apply the same, that the knives would cut with the grain of the wood, and in order to accomplish this, the handle had to be changed from the upper to the lower part of the machine. You may now state what, in
293 view of your experience with the running operations of said machine, would be the result with respect to the material in case a different mode of applying the material to the machine was used, as for example, suppose the hand-hold of the handle was drawn over the machine, throughout the whole arc or curve of the handle at one draw.

(Objected to as immaterial.)

Ans. It would be ruin and disastrous to the material.

Int. 74. Your attention now is called to this tin-type, which I now show you, and to the picture thereon, at the left of the type, and marked figure No. 1, the same purporting upon its face to be a picture of the casting of one side or disk of a rotary cutter-head. You will please examine the same and after having examined it, you will state whether or not you notice or recognize between the

picture referred to, and the casting which it purports to represent, and the said plow-handle rounding machine, which you have testified you used at the shops of the Louisville Agricultural Works in the latter part of 1879, state the subject of inquiry according to your best judgment.

(Objected to as leading.)

Ans. It shows one side of the cutter-head I used.

(Complainant here introduces in evidence said tin-type, and that portion of said tin-type marked figure one (1), and marked complainant's "Exhibit Tin-type Exhibit G.")

(Objected to as incompetent, irrelevant and immaterial.)

Int. 74-½. You may state with how many disks the said rounding machine for rounding plow-handles, which you used at the shops of the said Louisville Agricultural Works, and which you have testified substantially you understood and were informed was constructed by Herman Fletcher, the machinist employed by said works.

(Objected to as calling for hearsay testimony.)

Ans. Two.

Int. 75. State whether or not there was any steel or iron plate adjusted between said two disks.

(Objected to as leading.)

Ans. There was.

Int. 76. State what, if any, plate was adjusted between said disks.

294 Ans. There was a steel plate adjusted between them.

Int. 77. State the diameter of said disks, as near as you can?

Ans. From the outside to the outside, it was 7⅞ inches.

Int. 78. State the width of the groove at the top formed by the disks, as nearly as you can?

Ans. About 1¼ inch, when closed.

Int. 79. State about the depth of the groove?

Ans. It was about an inch and a quarter.

Int. 80. Do you mean the side depth?

Ans. Yes.

Int. 81. State what difference, if any at all, there is between the adjustment of the knives to the side of the disks, and into the

groove, in the Fletcher machine so called or referred to above, and the adjustment of the knives upon the side of the disk and into the groove, as the same is represented in the picture in the tin-type shown you.

Ans. It looks as if there was no difference.

Int. 82. You may state whether or not there were any wire springs in any manner adjusted to said machine?

(Objected to as leading.)

Ans. There were.

Int. 83. At what part of said machine were said springs adjusted?

Ans. They were adjusted around the journal or mandrel. There was a groove in the axle or rabbet to receive the wire, on the outside of the wire was a screw washer, that also had a groove to receive the wire, that was then screwed up to confine the wire in its place. This arrangement was at both ends of the hub.

Int. 84. State how the two disks, with the steel plate between them, were brought in contact?

Ans. By the force of the springs.

Int. 85. The machine constructed in the manner in which you have stated, when used would have first a rotary motion. I mean the disks of the machine first would have a rotary motion and secondly a lateral motion on the shaft, away from each other, is this not true?

Ans. It is.

Int. 86. Would said motions be concurrent?

Ans. They would be.

Int. 87. When the machine thus constructed is being used, by the application of handles upon the same as above testified to, state whether or not, in practical use, the material sought to 295 be rounded or dressed, would more or less cause the disks to separate from each other according to the width of the material.

Ans. It would, that was the design of the machine.

Int. 88. State whether or not, when the machine is thus being used, the steel plate adjusted between the disks would also have a lateral motion, and follow either one disk or the other in the operation of dressing the material?

Ans. It would.

Int. 89. Your attention is called to complainant's "Exhibit A," of date July 9, 1891, and your attention is further called to all the particular component parts of said machine, and the construction of the same, including the particular adjustment of the knives

therein, and the beds of the knives, and the openings above the upper plane of the knives for the discharge of the chips, and the depth of the groove, and state whether or not, in your opinion, there is a difference between the construction of "Exhibit A" and its component parts, and the construction of the machine and its component parts, above mentioned and referred to in your answers, as being the machine which you used at the shops of the Louisville Agricultural Works, for rounding plow-handles, and also referred to as having been constructed by Herman Fletcher?

(Objected to as incompetent.)

Ans. There is a wide difference.

Int. 90. State whether or not such difference is a material difference, in your opinion?

Ans. It is.

Int. 91. State whether or not in your opinion, a competent mechanic having what we have above referred to as the Fletcher machine before him for examination, and having no knowledge of the invention represented by "Exhibit A," and in view of the general condition of the art, would be able to construct a machine, in accordance with the principles represented by "Exhibit A," without the exercise of invention and of the inventive faculties?

Ans. I think not.

Int. 92. There is now shown you seven several exhibits, marked respectively, 1, 2, 3, 4, 5, 6 and 7, and which complainant introduces as evidence in this cause, marked as such exhibits. You will please examine such exhibits, the same constituting seven several plow-handles, and please particularly examine the
296 neck portion of said handles, and state in view of your knowledge of plow-handles as constructed by various establishments throughout the country, so far as your knowledge goes, and state in what class such plow-handles, in your judgment, properly belongs?

(Objected to as irrelevant and immaterial.)

Ans. After a careful examination of these handles, that in my judgment they would pass on the market as first-class handles.

Int. 92½. You may state whether or not you have, to a greater or less extent, examined plow-handles and the necks of plow-handles, as made and sold upon the market by other plow factories?

Ans. I have.

Int. 93. You have stated in your previous answers in effect that there exists a wide and material difference of construction of

the machine "Exhibit A," and the said machine above alluded to as the Fletcher machine. I will now ask you whether or not, in your opinion, there exists a correspondingly wide and material difference in their effective operative and working principles?

Ans. There does, in my opinion.

Int. 94. State whether or not, in view of your knowledge of, and experience with, the practical operation of said Fletcher machine used by you, the same could be regarded as a practical machine for dressing the necks of plow-handles, after the same have been scooped and bent in the rough, such as, for instance, these two several handles, or similar ones, which I now show you, and which complainant introduces as evidence marked "Exhibits H & I," which please examine, and then make your answer.

297 (Objected to as leading, and objection is also made to said Exhibits "H & I," as being irrelevant and immaterial.)

Ans. My answer would be, I think not.

Int. 95. State what would be the practical result of an attempt to dress such handles on said machine?

Ans. It would be destructive to the under part of the hand-hold.

Int. 96. You may state whether or not the said Fletcher machine, while in operation, was accustomed to become in any manner clogged up with chips, or otherwise?

(Objected to as leading.)

Ans. Yes, it frequently clogged up in the bit with shavings.

Int. 97. You may state whether such clogging interfered with the operation of the machine?

Ans. It did.

Int. 98. State whether it would be necessary to stop the machine to clean out such chips?

Ans. Yes.

Int. 99. State whether or not the knives of said machine ever assumed any jumping or digging motion when in operation?

(Same objection.)

Ans. They did.

Int. 100. You may state what was the effect of such jumping and digging motion upon the material?

Ans. It caused a rough, unfinished surface.

Deposition of Benj. F. Allen.

Int. 101. You may state what, in your opinion, was the chief cause, or causes of such jumping and digging motion?

Ans. The particular mode of the knife was put into the groove of the machine.

Int. 102. You may state whether or not, in your opinion, the particular plan of the adjustment of the knives to the sides or disks of the machine, and into the groove, had anything to do with the jumping and digging motion referred to?

(Objected to as leading.)

Ans. It had.

Int. 103. Do I understand you correctly then to mean that the particular mode of the adjustment of the knives, as mentioned in the foregoing question, constituted the chief cause of such jumping and digging motion of the machine?

298 (Same objection.)

Ans. It was.

Int. 104. You may state what was the particular character of the chips produced by said machine?

(Objected to as immaterial.)

Ans. They were short chips, from ¼ to ¾ of an inch long.

Int. 105. State how long it was, if at all, you remained in the plow-handle business after your left work at the shops of the Louisville Agricultural Works?

Ans. 12 or 15 months.

Int. 106. You have mentioned in one of your preceding answers, in substance, that in conversation with Mr. Anderson upon your intimating to him that you wanted a machine like the Fletcher machine, or like the one you were then using, and that Mr. Anderson offered to cause such a machine to be made, just like the one you were using, you may now state whether or not in point of fact, you did obtain a newly constructed machine from said Agricultural Plow Works.

(Objected to as not embodying a correct statement of the testimony, the fact being that the witness testified that he desired and offered to purchase the particular machine which he has referred in his testimony as the Fletcher machine.)

(Complainant withdrew the foregoing question.)

Int. 107. State whether or not you used any plow-handle rounding machine in your business after you left said works?

(Objected to as incompetent, irrelevant and immaterial, and not calling for proper rebuttal testimony.)

Ans. I did.

Int. 108. Where was it constructed?

(Same objection.)

Ans. At Louisville Agricultural Works.

Int. 109. When?

Ans. The fore part of 1880, while I was at work there.

Int. 110. State whether or not you feel clear that it was not the latter part of 1879?

Ans. I may have made the contract in 1879, but did not receive it until 1880.

Int. 111. I will ask you whether or not J. W. Adkinson was not foreman of the wood department, and also Herman Fletcher chief machinist and foreman in the machine shop, at the time said machine was made?

Ans. They were.

Int. 112. Have you any knowledge of the name of the particular individual or individuals who may have participated in the actual construction of the machine you had constructed at said works?

(Objected to as irrelevant and immaterial.)

Ans. I have.

Int. 113. You may state whom?

Ans. Mr. J. W. Adkinson and Mr. Herman Fletcher.

Int. 114. What did you see Fletcher do?

(Objected to as immaterial.)

Ans. He took the dimensions of the old machine and worked on it in the machine shop.

299 Int. 115. State whether or not said machine was constructed according to the full pattern of the said Fletcher machine, which you used at said works?

Ans. It was duplicate of the old machine.

Int. 116. How long did you remain in the business after you left said works?

Ans. 12 or 15 months.

Int. 117. Why did you stop the business?

(Objected to as immaterial and irrelevant.)

Ans. I didn't find it profitable.

Deposition of Benj. F. Allen.

Int. 118. What was one of the chief causes of the lack of profits in the business?

(Objected to as irrelevant and immaterial.)

Ans. Too much labor to perform to complete the handle.

Int. 119. State what labor that was, whether before or after the handles finally left the machine, or both?

(Same objection.)

Ans. It was the combination of both, but the hand labor after leaving the machine was the slowest and most expensive.

Int. 120. What did you do with that machine after you quit the business?

(Same objection.)

Ans. I sold it to a man by the name of William Harmeling.

Int. 121. About what year was it that you let him have it?

(Same objection.)

Ans. 1882.

Int. 122. About how long was it that Harmeling used the machine, if at all, after you let him have it?

(Objected to as incompetent, irrelevant and immaterial.)

Ans. He dabbled with it about 12 months.

Int. 123. How long have you resided in New Albany, Indiana?

Ans. 40 years.

Int. 124. Did you ever hear of a man living in that city, or being within its vicinity, by the name of William Herman, or William Harmon?

Ans. I have no recollection of such a man.

Int. 125. Where does said William Harmeling live?

(Same objection.)

Ans. Two miles north of New Albany, Ind. His post-office 300 address is New Albany, Ind.

Int. 126. State whether or not in 1879, B. F. Avery & Sons were using a rotary plow-handle dresser at their shops in Louisville, Kentucky.

(Objected to for the reason that it has not been shown that the witness has any knowledge at all of the business of the company being inquired about.)

(The foregoing question is withdrawn.

Int. 127. State whether or not in 1879, to your knowledge, B. F. Avery & Sons were conducting a plow-handle manufacturing business at Louisville, State of Kentucky?

Ans. They were manufacturing plow handles for their own use.

Int. 128. Were they then using rotary plow-handle dresser upon the necks of plow handles to your knowledge?

(Objected to as leading.)

Ans. They were.

Int. 129. State whether or not you examined the work done upon said machine?

Ans. I took a look at it one day as I was passing through.

Int. 130. Please state how the work performed upon said machine as to character and quality, as compared to the work done on said Fletcher machine, as you have above testified?

(Objected to as irrelevant and immaterial.)

Ans. What I saw of the work, according to my best judgment, was slightly inferior to the work done on the Fletcher machine.

Int. 131. State whether or not you ever heard George Avery, one of said company, make any complaint about the bad working qualities of said machine?

(Objected to as incompetent and calling for hearsay testimony.)

Ans. I heard George Avery say one day that he wanted to get another rounding machine, because the machine he had in use then was not doing satisfactory work.

Cross-Examination.

X Int. 1. The machine that you have spoken of as the
301 Fletcher machine had a groove in its periphry in which to place a handle while being dressed, did it not?

Ans. Yes sir.

X Int. 2. And it also had knives or bits projecting through the 2 sides into the groove, in such manner that the cutting edges of these knives or bits would operate on a handle placed in the groove when the head was in motion, did it not?

Ans. It had.

X Int. 3. And in front of each knife the head was cut away,

Deposition of Benj. F. Allen.

forming a recess to aid in the discharge of chips and shavings, that is correct, is it not?

Ans. There was a bevel as is customary in all machines of that nature, that I have occasion to operate.

X Int. 4. And that bevel, that you have referred to, was made for the purpose of allowing chips and shavings to escape more readily, was it not?

Ans. It was.

X Int. 5. The adjustment of the knives in that machine was made by means of set screws passing through a slot in each knife?

Ans. It was.

X Int. 6. You have spoken of having to remove chips or shavings that became clogged in the machine. About how often was it necessary to stop the machine to do that?

Ans. Well, whenever I got across a snarly grained handle the knives came in contact with the grain against the knife, it would cause a deeper cut which would fill up the vacuum between the bit and the disk of the machine.

X Int. 7. But otherwise when operating on fairly good timber I suppose you could dress a good many handles before you had to stop the machine to clean it out, couldn't you?

Ans. I could.

Re-Direct Examination.

Int. 132. You were asked on cross-examination, being interrogatory 2, which is as follows: "And it also had knives or bits projecting through the 2 sides into the groove in such manner that the cutting edges of those knives or bits would operate in a handle placed in the groove, when the head was in motion, did
302 it not?" Your answer as follows: "It had."

In order to explain more definitely and precisely the exact manner such knives or bits were adjusted to the sides of the machine, and into the groove of said machine, I will call your attention to the certain tin-type picture which has been introduced heretofore in evidence marked "Exhibit G," and I call your attention, especially to the left-hand picture thereon marked figure 1, and I will ask you whether or not it fully and correctly represents the particular manner in which said knives are adjusted in the sides of said Fletcher machine, and into the groove thereof, and will further ask you whether or not you mean by your answer to said cross-question that the said knives were so adjusted as represented by said picture to the machine and to the groove thereof?

Ans. Yes sir.

Deposition of Benj. F. Allen.

Int. 133. You have used the word bevel in your cross-examination, as constituting the opening for the discharge of chips. Your attention is now called to said picture and to the openings at the end of the bits therein represented, I will ask you whether or not the bevel to which you have referred as being for the discharge of chips, was in any form or any locality about the machine different from that represented by said picture?

Ans. No difference.

BENJ. F. ALLEN.

Subscribed and sworn to before me by the said Benj. F. Allen, this 25th day of January, 1892.

SOLOMON E. KEAGLE,
[SEAL] *Notary Public.*

Deposition of Ralph J. Caverly.

RALPH J. CAVERLY, being of lawful age, produced, sworn and examined, testified as follows:

303 Int. 1. Your name is R. J. Caverly, is it?

Ans. Yes sir.

Int. 2. You are the same Ralph J. Caverly, are you not, whose testimony was taken about the 19th day of August last?

Ans. I am.

Int. 3. Your attention is called to tin-type "Exhibit G," heretofore introduced in evidence, after having examined the same you will please state whether you were present and saw the artist take said tin-type exhibit?

Ans. I was.

Int. 4. You may now state particularly from what particular machine exhibits the same was taken, and further state whether or not such machine exhibits have been introduced in evidence in this cause on the part of the defendant. Please state the particulars according to the facts?

Ans. The tin-type was taken from 2 several exhibits introduced in evidence on the part of the defendant in that cause, the same being defendant's Exhibit Grand De Tour cutter-head and defendant's Exhibit Louisville head.

Int. 5. The complainant introduces in evidence 2 several plow handles in addition to the previous plow-handle exhibits. Said 2 plow-handle exhibits being marked respectively "Exhibits 8 and 9." Your attention is now called to these 9 several exhibits heretofore introduced in evidence in this cause and marked respectively 1, 2, 3, 4, 5, 6, 7, 8 & 9. You will please examine the same, and after having so examined the same, I will ask you on what machine, if any, the same were severally dressed?

Deposition of Ralph J. Cavelty.

(Objected to as incompetent, and like objection is made to to the introduction in evidence of "Exhibits 8 and 9.)

Ans. They were dressed on complainant's Exhibit A."

Int. 6. State whether or not these plow-handle exhibits marked 1, 2, 3 & 4 were varnished as they now appear, just as they came from the machine and without further finish?

(Same objection.)

304 Ans. They were.

Int. 7. Your attention is now called to plow handle exhibits marked 5, 6 & 7, respectively, and state whether or not they were painted as they now appear just as they came from said machine and without further finish?

(Same objection.)

Ans. They were.

Int. 8. Your attention is called to exhibits No. 8 and 9. and state whether they are just the same now as they were when they came from the machine without further finish.

(Same objection.)

Ans. They are.

Int. 9. Please state whether or not you were present when all these several exhibits were dressed upon the machine "Exhibit A?"

(Same objection.)

Ans. I was.

Int. 10. State whether or not, whether there existed any appreciable undressed bead or undressed portion of said handles, I mean the neck portion of said handles, after the same came from the machine? Please explain.

(Same objection.)

Ans. There were none whatever, on some of the handles there was a small crevice owing to the fact that one of the knives had raised a little out of its place on the point, but such handles were dressed around the entire circumference of the same.

Int. 11. You mentioned in your answer that on some of the handles there was a small crevice. Your attention is called to Exhibits No. 8 and 9, and you will please examine the upper and lower arcs of said exhibits, and state whether you mean by the term crevice, the slight, noticeable crease passing over the upper and lower arcs of the handles?

Ans. I do.

Int. 12. You will please state whether or not all of said handle Exhibits, except Exhibits 4, 5 and 7 of the varnished exhibits were dressed upon said machine Exhibit "A" with the adjustment of the knives therein, as the same now exists and appears.

(Same objection, and objection is further made to the question for the reason that the knives are capable of being
305 readily changed, so that upon the hearing it will not be possible for the court to judge what position of the knives counsel is now referring to.)

Ans. The handles to which my attention is now called were dressed with the knives adjusted upon the machine to cut the complete circumference of the handle and adjusted as they now appear in "Exhibit A."

Int. 13. Question repeated. They were.

Int. 14. Your attention is now called to the extreme point of the certain knife now adjusted in the said exhibit machine, which is for the purposed designation is marked Exhibit X, and please state whether or not the extreme point of said knife is very slightly raised above the point of the knife directly opposite?

Ans. It is.

Int. 14½. You may state whether or not, to your knowledge in view of your observing the actual dressing of the handles referred to, such slightly raised point caused a crease appearing upon the upper and lower arcs of some of said handles?

Ans. It did.

Int. 15. Your attention is now called to Exhibits 4, 5 & 7 of the varnished handles, and state whether or not the necks of said handles were dressed upon said machine "Exhibit A" shortly previous to the time that the other plow-handle exhibits No. 1, 2 & 3, 6, 8 & 9, respectively, were dressed upon said machine, with the knives adjusted as they now appear?

Ans. They were.

Int. 16. You may state whether or not said plow-handle exhibits Nos. 4, 5 & 7 were dressed upon said machine "Exhibit A" with the knives therein having a slightly different adjustment of the knives, and particularly the points of the knives, when the same were dressed?

Ans. Yes.

Int. 17. State whether or not the knives and the points of the knives in the machine under both adjustment of the knives, dressed the whole surface of the neck of the handles, including the upper and under arcs of the same?

Deposition of Ralph J. Caverly.

Ans. They did.

Int. 18. I will ask you whether or not, during and in the
306 operation of dressing each severally of said plow-handle exhibits, there was any tendency to exercise cutting of the material?

Ans. There was not.

Int. 19. State whether or not there existed any difficulty in adjusting the knives of the machine so as to dress the neck of the handle without leaving an undressed bead upon the same, and at the same avoid any tendency to excessive cutting of the material.

Ans. There was not.

Int. 20. You may state whom the complainant procured to make the above mentioned 2 several successive adjustment of the knives to said machine.

Ans. John W. Bartlett.

Int. 21. State whether or not complainant's object was in making these several successive adjustment of the knives in the machine, to clearly show the entire practicability of adjusting the knives and points of the knives to the machine so as to dress the under and upper arcs of plow handles without leaving any undressed bead or undressed portion of the handle, and at the same time prevent any tendency to the excessive cutting of the material.

(Objected to as leading.)

Ans. Yes, sir, I had perfect knowledge that such was the purpose.

Int. 22. Your attention is now called to these two several exhibits, the same being complainant's "Exhibits E & F" which have been identified by the witness heretofore examined, Lawrence W. Larson, as being photographs taken by him of the plow-handle machine, located in the shops of the defendant Deere & Co. You may state whether or not you ever saw said machine or machines, there being apparently three heads, at the shops of said defendant.

(Objected to as immaterial.)

Ans. Yes, I saw the machine or machines.

Int. 23. Where?

Ans. In Deere & Company's shops.

Int. 24. When did you last see these machines at the shops of Deere & Company?

307 Ans. Last spring.

Int. 25. I will ask you to examine the back portion of said machines, and the wooden frame in which there is a slot in front of each cutter-head as represented in said picture, and state whether

or not you noticed said slots last spring on the occasion of your seeing said machines?

Ans. Yes sir, I did.

Int. 26. State whether or not you noticed how said slotted framework was attached to said machines, if it was at all so attached.

Ans. It was nailed or bolted to the frame of the machine, or to the frame upon which the machine is mounted. In front of the machine or in the background as it appears in this picture, and was wholly disconnected with the cutter-heads.

Int. 27. State how near the bottom of each slot was to the cutter-head, respectively; state as near as you are able.

Ans. About 6 inches.

Int. 28. About how wide was each of said slots?

Ans. I thought them rather wider than was necessary to give the play of the handle, too wide, in fact, to form a rest for the handle. I don't know the width.

Int. 29. Question repeated.

Ans. Considerable wider than the width of the handle.

Well, about how many inches, from 2½ to 3 inches.

Int. 30. You may state where the operator stood when operating the machine?

Ans. In front of the machine.

Int. 31. Well, where did he stand with respect to picture in photographs?

Ans. In the background as appears in the picture. Just behind the slot.

Int. 32. State whether or not you saw operator dressing handles in this machine?

Ans. I did.

Int. 33. When?

Ans. Last spring at the time I was there. The few months previous I was there several times.

Int. 34. I will ask you if you didn't see an operator dressing 308 handles on said machines on the 1st day of December, 1890?

Ans. I did about that time.

Int. 35. Well, where did that operator stand with respect to the appearance in the picture?

Ans. In the background of the picture and back of the slots, and which would be the front of the machine.

Int. 36. You may state, as near as you can, the manner in which the operator had adjusted the handles to said machines?

Ans. He held the handles in his hands by the longer straight part thereof, and holding the handle over the head of the machine,

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with the long portion extending through the slot, said long portion being held by the operator, he drew the curved portion of the handle through the groove of the head, to dress the upper portion of the arc, and like manner through another head for the under portion of the arc, and then extending the long portion of the handle through a slot on the 3rd head and hold the curved portion of the handle, the long portion of the handle over the head to dress the back of the handle. The back of the handle was not rounded its whole length the back, all but the straight portion of the handle was not rounded its full length but say from 1/2 to 2/3 of the length of the same.

Int. 37. Are you quite certain that the operator after having dressed the neck of the handle in the 2 first heads, then reversed the handle, and taking hold of the crooked portion applied a portion of the other end of the handle to the machine, or did he apply the handle to the last or third cutter-head, still holding the same end of the handle with which he started?

Ans. My best recollection is that he reversed the handle and taking hold of the curved portion of the handle, he extended the other end of the handle over the head and placing it against a gauge so as to bring the other end of the straight part of the handle, that is, the end next to the arc, directly over the head, and then drew the long portion of the handle from 1/2 to 2/3 309 through.. I am not quite certain that when the handle was placed upon the head to round the back part of the long portion, that it met the dressed part of the curved portion, or whether it began at a point some distance from the same, and dressed clear through to the other end. I saw handles rounded on the back in both ways, and did not take particular notice how it was done on those occasions. At any rate the long portions of the handles were not dressed throughout the whole length of the back.

Int. 38. As I understand you then, that the last head used by the operator, was used for the sole purpose of dressing a part of the straight portion of the handle extending below the arc or neck of the handle. Is that true?

Ans. Yes sir.

Int. 39. I also understand from your previous answers that the operator dressed the upper arc of the handle, upon the first head, then passing to the slot in front of the second head, he dresses the under portion of the handle upon the 2nd head, thence passing to the slot of the 3rd head, he dresses a portion of the straight part of the plow handle. Am I correct?

Ans. You are.

Int. 40. State whether or not there is a difference between the width and curvature of the groove in these three several heads.

Ans. There was a difference in the curvature of the groove of the three several heads, they were apparently of the same width.

Int. 41. State whether or not the 2 first heads had about the same diameter and also depth of groove.

Ans. They had.

Int. 42. State whether or not the 3rd head was like or varied from the other two in these particulars.

Ans. The third head had smaller diameter, and I think had a shallower groove.

Int. 43. State what is the character of the grooves in these 3 several heads with respect to form and smoothness.

Ans. All the grooves were smooth, one was adapted to give an oval shape to the handle and the other two a round.

310 Int. 44. You may state whether or not you examined the cutter-heads of these three several machines?

Ans. I did.

Int. 45. State whether or not you observed any appreciable difference between the construction of the defendant's three several cutter-heads and the construction of complainant's Exhibit "A?"

(Objected to as incompetent, and further objection is made on the ground that it has not yet been shown that the witness is by education or experience qualified to compare machinery.)

Ans. I made a very close examination of the machines, and saw no difference, excepting there being a continuance flange around the periphry in "Exhibit A." The smaller head varied in having a prolonged ditch in front of the knives on the outer side of the disk, it didn't extend clear through.

Int. 46. I will ask you if the ditch you refer to seemed to perform any office in the running part, or was it portions of the metal taken out for the purpose of balancing the head on the shaft?

Ans. It appeared to me to be useless to run a ditch in that manner, as it did not facilitate in the discharge of the chips. It had no relation to the running qualities or workings of the machine. It may have been done to balance the head.

Int. 47. I will ask you whether or not there was in defendant's machines, adjusted a thin steel plate between the disks which is not found in "Exhibit A?"

Ans. There was.

Deposition of Ralph J. Cavelly.

Int. 48. You may state now whether you have mentioned all the observable differences between the machines?

311 Ans. I think I have.

Int. 49. State whether or not the operator in dressing handles on defendant's cutter-heads rested, more or less, the handle upon the bottom of said slots?

(Objected to as leading.)

Ans. He did.

Int. 50. State what appeared to be the office of said slots in connection with dressing handles?

Ans. The principal office was to perform a rest for the long portion of the handle while dressing the same, and thereby render the work less irksome. It also might perform the office of a shield to prevent the operator being drawn in the machine in case the handle should become stuck in the periphery. I refer laterally to the rests in which the slots were placed.

Int. 51. State whether or not you ever examined the character of the work done on said defendant's machines about the years 1885 & 1886?

(Objected to as immaterial.)

Ans. I did.

Int. 52. Where was the material that you examined located?

(Same objection.)

Ans. In the same spot I saw it at all times spoken of in my testimony, and where it stood the last time I was in the shop.

Int. 53. You will please state where the material was located at the time you examined it?

(Same objection.)

Ans. Within five or six feet of the machine.

Int. 54. Where was the machine?

Ans. In defendant's shops.

Int. 54. State whether or not you examined the character of the work performed upon defendant's said machines at the times alluded to?

(Same objection.)

Ans. I did.

Int. 55. State whether you saw at the time some portions of it being dressed by the operator?

(Same objection.)

Ans. I did.

Int. 56. Well, you may now state as to the character of the work then done as to smoothness and finish?

(Same objection.)

312 Ans. The work was very smooth and fine and the longitudinal beads very small and narrow, so much so that there would not appear any appreciable prominence upon the handle after being painted.

Int. 57. State the character of the finish and smoothness as to its sufficiency to go directly to the paint shop, without further finish or smoothing?

Ans. The curved portion of the arc was sufficiently smooth to go to the paint shop without further dressing.

Int. 58. Do I understand then that the necks of the handles dressed on said defendant's machines were at that time sufficiently smooth to go to the paint shop, without further finish or smoothing. Is that right?

Ans. It is.

Int. 59. State the character of the room or that portion of defendant's shop where said machines are located, with respect to light? Please explain.

(Objected to as irrelevant and immaterial.)

Ans. The room is very dark and gloomy.

Int. 60. State whether or not the photographs put in evidence were necessarily taken in a room quite dark and shaded?

(Objected to as incompetent and immaterial.)

Ans. They necessarily were.

Int. 61. I will ask you if, from the nature of the locality where the machine rests, there was difficulty experienced in getting proper position of the instrument to rest? Please explain.

(Same objection.)

Ans. The necessary direction of the camera from the machine must necessarily have rendered the wall of the building too close to the machine, in my judgment, to get a proper focus. I was surprised when I learned the picture was taken with a camera, with such near proximity to the machine.

Int. 62. Your attention is now called to complainant's "Exhibits H & I," state whether or not the plow-handle exhibits introduced in evidence, being numbered from one to nine, respectively, were dressed from material which had been simply scooped

Deposition of Ralph J. Caverly.

and bent in the rough, and being of the same and like character
313 in all substantial respects prior to the dressing as is shown by these "Exhibits H & I?"

Ans. They were, though the grain in these two handles are not so cross-grained as some that we dressed. They were about as winding as these and averaged about the same.

Int. 63. State about what rate of speed was "Exhibit A" running at the time complainant's said plow-handle exhibits were dressed? State according to your best judgment.

Ans. From 1,500 to 1,800 revolutions per minute.

Int. 64. State whether or not, judging from the workings of Exhibit A" when running at a slower or higher speed, the character of the work performed as to smoothness and finish is varied to some extent by the velocity of the machine?

Ans. It is.

Int. 65. You may explain your answer more fully.

Ans. I observed the higher the speed of the machine the easier it was to hold the handle and guide the handle while cutting, and to apply a handle when the machine is starting or stopping, say while it is running from 100 to 700 revolutions, would have a tendency to shake the handle slightly, thereby breaking or slivering the grain somewhat and doing rougher work, the same as would result from dull knives.

Int. 66. Where then the speed is from 1,500 to 2,000, 2,500 or 3,000, state what would be the result in the character of the work?

(This line of examination is objected to, as it has not yet appeared that the witness knows anything at all about the practical operations of this or any other machine.)

Ans. Judging from the speed I have already seen and the work done, I should judge that at a still further increase of speed, say to 3,000 revolutions, would put a polish on the handle.

Int. 67. About how many handles a day could an operator dress upon "Exhibit A," with a motion of 2,000 revolutions per minute?

Ans. I dressed a handle while the machine was running at
314 from 1,500 to 1,800 in from 3 to 4 seconds, and think by practice and skill one might be dressed in 2 seconds; however, in the long run I do not think one could dress more than 5,000 or 6,000 in ten hours.

Int. 68. State whether or not, by an increase in the speed of the machine, such increase as the machine could appropriately and practically bear, the operator could dress 5,000 or 6,000 a day with comparative ease?

Ans. He could.

Int. 69. I will call your attention to that portion of the specifications of complainant's patent, commencing with the 54th line and ending with the 68th, which is as follows: When the knives are projected to a considerable distance into the curve, the chips are larger and the work consequently not so smooth, as when the distance which they extend beyond the curve is made shorter and when they are but slightly projected, the chips are very fine and the working very smooth and nice: these adjustments may be made to suit the character of the wood being shaped or the character of the work required, but with proper care, with all qualities of wood the arrangement of the knives may be made so that the handles shaped will be sufficiently smooth to go directly to the paint shop, without further smoothing or finishing."

I will ask you to what extent, if any, the foregoing recitals of said specifications have been verified and shown to be true in the several practical operations of the machine "Exhibit A" made by you and in your presence under several different adjustment of the knives therein. Please explain.

Ans. Under one adjustment of the knives the bits were projected to a considerable extent beyond the groove, and the work done was not so smooth as that done under a finer adjustment; another adjustment was made, with the knives not projecting so far beyond the groove, and the work was finer with better finish and the shavings finer as they came from the machine. Still another adjustment was made with bits less projecting, with the points of the bits approaching the material from the under part of the
315 center of the groove so as to dress the entire portion of the handle coming in contact with the groove. Such handles were very fine, left no longitudinal bead, and was sufficient to go to the paint shop without further dressing or finishing.

Int. 70. You speak in your answer of the knives in the first and second adjustment extending beyond the groove. Do I understand you correctly to mean that the bits extended considerably beyond the curve of the groove?

Ans. That is what I meant.

Int. 71. Do I understand you correctly to mean in your explanation of the 3rd adjustment, that the points of the knives were so arranged, so as to cover the whole surface of the material coming in contact with the central part of the groove?

Ans. Yes, that is what I meant to convey.

Int. 72. Do I understand, then, correctly, from the whole of your answer, that the work performed or accomplished by the

Deposition of Ralph J. Caverly.

machine was in strict accordance with the recitals in the specifications referred to?

Ans. Yes sir.

Int. 73. About how many necks of handles could be reasonably be dressed by an operator per day upon said the machine "Exhibit A" with the knives adjusted according to the 3rd adjustment of knives mentioned in your foregoing answers, and with the like result as to quality of work and at a revolution of the machine of about 2,000 per minute?

Ans. About between 5,000 & 6,000.

Int. 74. You have worked in machine shops and various manufacturing establishments where rotary wood-dressing implements or machines were used and have had experience in that direction, have you not?

Ans. I have.

Int. 75. You may state in view of your said experience, you regard yourself as competent to pass a correct judgment or opinion as to the qualities of necks of plow handles when dressed upon rotary cutter-heads to judge fairly correct as to its speed, and to arrive at a reasonably correct judgment as to the practical results
316 of running a rotary cutter-knife at a lower or higher speed and to know and appreciate the qualities of work which such a machine would inevitably perform, with the various adjustment of the bits?

(Objected to as leading.)

Ans. Yes sir, I do.

Int. 76. State in view of your experience with the working qualities of the machine "Exhibit A" under the various adjustment of the knives thereof, what, if any, difference of rapidity of dressing plow handles would there be under a fine cutting adjustment of the knives and a coarse cutting adjustment of the knives?

Ans. The finer adjustment would do the work faster and more satisfactory than the coarser adjustment.

Int. 77. State whether or not you examined defendant's plow-handle exhibit introduced as evidence in this cause, as to the qualities of the work?

Ans. I did.

Int. 78. State what the difference is between the qualities of the workmanship of said exhibit and the qualities as to smoothness and finish of the plow handles examined by you which had been dressed by defendant, by the machine now in their shops, about the years 1885 and 1886?

(Objected to as immaterial.)

Ans. The handles introduced by defendant as an exhibit were not so smoothly finished, and had a larger and wider longitudinal bead than the handles I saw dressed and examined in Deere & Company's shops in 1885 & 1886. I refer to the handle I saw used on the machine in Deere & Company's shops. The complainant, on the 1st day of December, 1890, at complainant's first examination of witnesses, or on the first day of examination in connection with his making out his *prima facie* case, complainant introduced a certificate copy of his letters of administration of the estate of Sarah Caverly, deceased, according to complainant's counsel's remembrance, such certified copy lacked the certificate of the County Judge of Rock Island County, Illinois, and for the purpose of curing any defect in that direction complainant now introduces certified copy of letters of administration in the
317 estate of Sarah Caverly, deceased, marked "Exhibit K."

Cross-Examination.

X Int. 1. This is the fourth deposition that you have given in this cause, is it not?

Ans. Yes sir.

X Int. 2. What is your present occupation?

Ans. Well, I am not working just at present, but I am carpentering principally.

X Int. 3. When did you last have regular employment, and where?

Ans. At the sash, door & blind factory in Rock Island. It was a year ago. I didn't work very steady last summer, owing to the fact that I had to look up evidence in this case. In the fall I had charge of a capping machine in Milan.

X Int. 4. How long and between what dates did you work in the Rock Island Sash & Blind Factory?

Ans. I began sometime in February, if my memory served me right, and worked till spring, the latter part of April. I worked at carpentering some in the summer until I went to the canning factory.

RALPH J. CAVERLY.

Subscribed and sworn to before me by the said Ralph J. Caverly this 26th day of January, A. D. 1892.

[SEAL] SOLOMON E. KEAGLE,
Notary Public.

321 DEFENDANT'S TESTIMONY.

Deposition of Charles. O. Nason.

CHARLES O. NASON, witness for defendant, being first duly sworn, deposes and says in answer to interrogatories to him
322 propounded by counsel for defendant, as follows, to-wit:

Int. 1. You will please state your name, age, residence and occupation?

Ans. Charles O. Nason; age, 62 years; plow-maker by occupation.

Int. 2. How long have you been connected with the defendant Deere & Company?

Ans. Thirty-three years, about.

Int. 3. During that time have you familiarized yourself with the machinery and apparatus in use in the business of said Deere & Company, and in similar factories, and particularly with woodworking machinery employed in such business, and if so, to what extent?

Ans. I have been familiar with it ever since I have been here, and with woodworking machinery, previous to that time. am familiar with all the machinery we have in use here, or ever have had, and pretty generally familiar with the machinery for woodworking used by all shops in the country. Have had special charge of the woodworking department ever since I have been connected with the company.

Int. 4. You may state whether or not you were present and heard the testimony given by complainant's witnesses, Aram and Bartlett, early in December of last year?

Ans. I was present during the examination of both these parties at that time—nearly, if not all of it—during the examination of both parties; I am not positive that I heard the whole examination of Mr. Aram.

Int. 5. You may state whether you fully understand the construction and mode of operation of the machine in this factory about which such witness testified?

323 Ans. Yes sir, I am.

Int. 6. I now hand you a copy of the specifications and drawing of the Caverly patent sued upon; please state whether or not you have examined such specification and drawing, and understand the same?

Ans. I have read the specifications, and examined the drawings; think I understand both of them.

Int. 7. Please state whether or not, in your opinion, the machine shown and described in said Caverly patent is a practica

machine, and give your reasons for any opinions that you may have?

Depos Charle

Ans. As shown by the drawings, and described by the specifications, I do not think that it is a practical machine for the purposes intended, for the simple reason that there is no practical stop to the working of the knives on the wood being operated upon. Constructed as shown and described, if it did not depend upon the skill of the operator, the wood would be continually cut away in such a manner that the handles so operated upon would be useless. In the specifications in paragraph 5, it says "The handle is held by the operator on THE rest block." I suppose meaning A rest block. I know of no way that they can produce an even cut, except by the skill of the operator.

Int. 8. Please state wherein the cutter-head in use by the defendant, and on account of the use of which this suit is brought, differs, if at all, from the cutter-head shown and described in said Caverly patent, and state also what effect is produced by such changes?

Ans. In the heads the difference is simply that the heads used by Deere & Company have a space in the center between the knives, the space being formed in the defendant's case with a 324 steel plate between the two halves of the cutter-head, and not allowing the knives to cut to the center of the handle, and leaving the handle to rest on a circle that has no cutting edge, forming a rest for the handle to bear on, and in that way preventing any deeper cut than is desired. I mean to be understood that that part of the handle not desired to be cut away rests on the steel plate between the halves of the cutter-head.

Int. 9. Then, as I understand you, in defendant's machine, there was no rest such as large "F" of complainant's patent upon which to rest the handle being operated upon. Is that correct?

Ans. No, we make no use of any such rest, and the way the cutter-heads are constructed there is no use for any such rest.

Int. 10. Please state whether the handles shaped upon defendant's machine will be sufficiently smooth after such shaping to go direct to the paint shop without further smoothing or finish; and if not, please state why?

Ans. No sir, they will not be sufficiently smooth. One of the reasons would be that there is an undressed portion of the handle; where it rests upon the steel plate between the cutter-heads prevents the knives from finishing that part, and if that was not the case, they would not be smooth enough, in any part, to go to the paint shop. It would be impossible to make a machine to

do the work that fine and close, and at the same time be any profit in running.

Int. 11. Will you please produce as an exhibit in this cause a handle that has been dressed upon defendant's machine.

Ans. Yes sir.

Counsel for defendant offers in evidence the handle produced by witness, and the same is marked "Defendant's Exhibit, Defendant's Handle."

325 Int. 12. Please state whether or not, prior to 1883, it was common to use rotating cutter-heads, and if so state generally for what purposes?

Ans. It was common, and for a great variety of purposes. All shapers, planers, tenoning, rabbeting, and other machines: a long list of them. They were very common, and for dressing handles as I have understood, but have no personal knowledge of them at that time for that purpose.

Int. 13. Do you mean to be understood, for the other purposes named in your answer, you had a personal knowledge of them prior to that time?

Ans. Yes sir.

Int. 14. Please state whether or not at the date of the application of the Caverly patent it was old to secure knives or bits in place in the manner therein shown?

Ans. Yes sir, it was.

Int. 15. Please state whether or not the defendant company ever sends out, or has sent out, plow handles having the longitudinal rib on the upper and under side, as shown by "Defendant's Exhibit, Defendant's Handle?"

Ans. No sir; they never have.

Int. 16. Please examine the head now shown you, and state if you know how long it has been in possession of Deere & Company, and from whom it was obtained?

Counsel for complainant objects to the foregoing question as seeking to enquire about a machine concerning which, or in relation to which, no sufficient statutory notice was given of the same, and for the reason that no sufficient statutory notice of the same and residence of the person having used the same, and of the name and place where the same was used by such person named.

326 Ans. It was obtained from the Grand de Tour Plow Company, Dixon, Illinois. Just how long ago I am unable to tell. Some time during the summer of 1885 I was at Dixon, and saw

the machine there not in use. They gave me the reason of its not being used, was that they were purchasing their handles already necked, and had no use for it; and promised me at that time that they would ship it to Deere & Company in Moline. They neglected to do so right away. Some time after that, I do not remember how long, their factory took fire and burned up, burning the wood framework of the machine, but the iron work and heads of the machine were saved from the fire, and afterwards shipped to Deere & Company at Moline. They gave me to understand at that time that the machine had been in use, I am very sure, as early as 1852. The cutter-head as shown is similar to cutter-heads that I have seen in use in Deere & Company's shops, and at other shops, which probably produce about the same character of work, except that this has a solid head when generally others are made in two halves.

Counsel for complainant objects to the foregoing answer for the same reasons as interposed to the foregoing question.

Int. 17. Please state whether or not you are able to identify the cutter-head which has been produced, and to which you have testified, as one of the cutter-heads received by Deere & Company from Grand de Tour Plow Company, as mentioned by you?

Ans. Yes sir, I am.

Int. 18. You speak of a second cutter-head; please state whether or not the second cutter-head was like the one here produced?

Ans. My impression now is that the only special difference
327 was in the diameter. There was a difference in the shape of the grooves, one of them being more of a round or true hollow than the other: the groove in the other would be more of an elliptical form than the one: the one being nearly round.

Complainant's solicitor objects to the foregoing answer, and also to the question to which such answer is made, for the reasons as first above set forth; it being intended to make the same objection to the machine now in the presence of the witness, and also to the certain other machine which witness has referred to, but which is not now in the presence of the witness, or in the presence of the officers and attorneys prosecuting this examination.

Counsel for defendant offers in evidence the cutter-head referred to by witness, and the same is marked "Defendant's Exhibit Grand de Tour Cutter-head."

Cross-examination by complainant's solicitor waived.

CHARLES O. NASON.

Deposition of John A. Morey.

JOHN A. MOREY, a witness produced on behalf of the defendant, being first duly sworn, deposes and says, in answer to interrogatories to him propounded by defendant's counsel, as follows, to-wit:

Int. 1. You may please state your name, age, residence and occupation?

Ans. John A. Morey; residence, Moline, Illinois; age, 61; occupation, well I am foreman in the wood department of Deere & Company.

Int. 2. How long have you been employed by Deere & Company?

Ans. I went to work for Deere & Company ten years ago last December.

328 Int. 3. What experience have you had in agricultural implement shops, and other similar shops?

Ans. Well, I worked in about three agricultural shops before I came here. I worked in the Grand de Tour shops a while; then I worked in the shops at Peru a while, and then I worked for a time in the Dixon shops; Dixon plow shops.

Int. 4. Are you familiar with the machinery employed by the different shops for dressing bent plow-handles?

Ans. You have reference to this, I suppose? (Witness pointing to handle already introduced by the defendant in evidence.)

Int. 5. Yes sir?

Ans. Yes sir.

Int. 6. Prior to commencing work for Deere & Company had you ever seen bent plow-handles dressed by a revolving cutter-head, and if so please state when and where?

Ans. Yes sir, I did. It was at Grand de Tour, in the Grand de Tour Plow Factory.

Int. 7. Grand de Tour, Illinois?

Ans. Grand de Tour, Illinois, yes sir. I helped build a machine there myself.

Plaintiff's attorney interposes same objection as was interposed to the questions and answers of C. H. Pope, the last above taken.

Int. 8. Please state about when you made such machine?

Ans. Well, it's a good while ago; I can't get right down to

dates, but it was somewhere between '50 and '55, and I should say about '52, somewhere near there.

Counsel for complainant interposes same objection as last above.

329 Int. 9. I now show you a cutter-head which has been previously placed in evidence, and marked "Defendant's Exhibit Grand de Tour Cutter-head," and ask you to state if you have ever seen such cutter-head before, and if so, when?

Counsel for complainant interposes same objection as last above.

Ans. That is one of the same cutter-heads that I helped to make in Grand de Tour.

Counsel for complainant interposes same objection as last above.

Int. 10. How long, to your knowledge, was such cutter-head in use, and for what was it used?

Counsel for complainant interposes same objection as last above.

Ans. It was used for the shaping of plow-handles. It was in use ever—well, from the time it was made. I cannot say positively the time it was made; somewhere between '50 and '55. It was in use most of the time up to—well, say ten years ago, about that time they commenced buying their handles ready made. Since that time this machine has not been used very much.

Complainant's solicitor enters the same objection as last above.

Int. 11. You may state whether or not the Grand de Tour people dressed many handles upon such cutter-head.

Counsel for complainant interposes the same objection as last above.

Ans. Oh, yes. The plow-handles were dressed there for a great many years with it. I worked within ten or twelve feet of the machine when it was worked, almost every day for ten
330 or twelve years. That was while it was in Grand de Tour, and it run more or less all the time, from the time that it was made until the last fire we went through.

Complainant's solicitor interposes same objection as heretofore.

Int. 12. About when was the last fire that you refer to?

Ans. Well, now I cannot tell you that. I was here. It was, I think, about four years ago this coming spring. That is my impression about it.

Complainant interposes same objection as heretofore.

Int. 13. How are you enabled to fix the date as being in the '50's that such cutter-head was made?

Counsel for complainant interposes same objection.

Ans. Well, in the first place the Grand de Tour plow factory burned up in '57, and the machine was there in the shop and burned up at that time.

Solicitor for complainant interposes the same objection as last above.

Int. 14. In '57 you say?

Ans. I think it was in '57. There were two fires, and that machine has been through two fires: one in '57, and the other a short time after.

Int. 15. Please state whether or not, after the fire of '57, such cutter-head was again mounted in use and used?

Solicitor for complainant interposes the same objection as last above.

Ans. It was. I helped repair it up: built the frame for it, and it was used right there in the shop.

Int. 16. You say that was in 1857?

331 Counsel for complainant interposes same objection as last above.

Ans. Yes sir.

Counsel for complainant interposes same objection as last above.

Int. 17. Please describe briefly how such cutter-head was mounted and prepared for use?

Ans. Well, how it was put up?

Int. 18. Yes sir?

Counsel for complainant interposes same objection as last above.

Ans. Well, the head was made in the shape it is there;

knives were made and put in it; shaft made and put in there (witness pointing to the center hole), and frame made; and boxes set on the frame, and the shaft put in the boxes and got ready for use; belts put on the pulleys and got ready and used.

Counsel for complainant interposes same objection as last above.

Cross-Examination

By D. B. Nash, Esq., solicitor for complainant, to-wit, *de bene esse:*

Cr. Int. 1. About what time was it that you left the employment of the Grand de Tour Plow Company?

Ans. Well, now I was trying to think. I cannot say that positively, but I should say from '62 to '63, somewhere along there; I could not say positively; it is something that I did not expect to ever come up again.

Cr. Int. 2. Afterwards you did not work for the company?

Ans. No sir.

332 Cr. Int. 3. As I understand you to say, after you left the company's employ—Grand de Tour—you never saw the machine in operation, and had rather lost sight of it: of the history of the machine?

Ans. I cannot say that I ever saw the machine in operation after I left there; I knew where the machine was; I used to go in to the shop and see the machine standing there up to the time it was burned the second time.

Jo[illegible]

C. H. Pope, a witness produced on beha[illegible] ing first duly sworn, deposes and says, in an[illegible] ries to him propounded by defendant's counsel, as follows, to-wit:

Int. 1. You may please state your name, age, residence and occupation?

Ans. Charles H. Pope; between 41 and 42; Moline, Illinois; assistant secretary, Deere & Company.

Int. 2. How long have you been connected with Deere & Company?

Ans. Since September 1, 1889.

Int. 3. How long have you been in the agricultural implement business?

Ans. Since the fall of 1869; probably about September of that year.

Int. 4. During that time have you had occasion to observe the manner of dressing bent plow handles; and if so, where have you seen such dressing performed at places other than Deere & Company?

Ans. Both before and since that time I have had occasion
333 to see the dressing of plow-handles in various factories throughout the country; as early as 1862 I was familiar with this operation in the factory of B. F. Avery, at Louisville, Kentucky. Between '62 and '69 I was familiar with this operation at the factories of A. H. Patch & Company, Louisville, Kentucky, and Hall, Moore & Burkhardt, Jeffersonville, Indiana. Since 1869 I have been familiar with this operation at the factories mentioned, and besides them at the factories of Brinley, Miles, & Hardy, Louisville, Kentucky; Louisville Agricultural Works, Louisville, Kentucky; A. H. Patch & Company, Clarksville, Kentucky; Haiman & Company, Atlanta, Georgia; Thomas Meikle & Company, Louisville, Kentucky; Hall & Speer, Pittsburg, Pennsylvania; Empire Plow Company, Pittsburg, Pennsylvania, and other small factories throughout the South, whose names I do not recall.

Int. 5. Are you familiar with the construction and mode of operation of the machine employed by Deere & Company for dressing plow handles and for the use of which this suit is brought?

Ans. I am.

Int. 6. You may state whether or not, prior to 1883, you had ever seen a machine for a similar purpose, having substantially the same construction and mode of operation as the said Deere & Company machine?

> The complainant objects to the foregoing question for the reason that no sufficient statutory notice has been given of the machine said to be enquired about, nor no sufficient statutory notice of the name and residence of the person who used such machine, or had knowledge of such machine, and of the place where such machine was known or used, and of the person who saw, knew or used the same.

334 Ans. I have seen, prior to 1883, several machines of almost the identical construction of the Deere & Company machine, so far as the cutter-head of it is concerned.

> Complainant objects to the foregoing answer for the reasons above given.

Int 7. Please state where you saw such machines; when you saw them, and how they were used?

The complainant objects to the question the same as first above stated.

Ans. The first machine of this kind which I ever saw was in the factory of B. F. Avery, of Louisville, Kentucky, between the years 1862 and 1867. This machine was invented and built by one H. Bloomfield, and consisted of two revolving cutter-heads, similar to the Deere & Company cutter-head, between which the handle to be rounded was moved. This machine differed from the Deere & Company machine in that the cutter-heads revolved horizontally instead of in a vertical plane. The machine was not practically successful owing to complications and expense. In 1867 or '8 one Edward Wiard took one of the cutter-heads from the Bloomfield machine and mounted it on a horizontal spindle so that the cutter-head revolved in a vertical plane, similar to the one in use by Deere & Company: attached suitable pulleys for proper velocity, and this machine so improved was used in the Avery factory for several years thereafter, and may be in use to-day. The cutter-head was, in fact, the identical cutter-head used by Deere & Company, but consisted of two parts which were joined together, being separated at the bottom of the semi-circular groove by a ring which acted as a stop for the handle, and prevented the knives from cutting the handle away too much. I do not remember whether the knives in this machine were in pairs or were single knives. In 1871 or '72 I was assistant superintend-
335 ent of the Louisville Agricultural Works at Louisville, Kentucky, and at that time, for our use, one Mr. Herman Fletcher got up a machine for rounding handles, in effect substantially like the machine used by Deere & Company. The cutter-head was in two halves: the knives were in pairs: there was a ring or stop at the bottom of the semi-circular groove to prevent the handle from being cut away: an opening in the under side of the head permitting the escape of shavings. The head revolved on a horizontal spindle, and was used by drawing the handle over it, the same as is the case with the Deere machine. I have seen several machines similar in construction to the one above mentioned, but have not been so familiar with the details of these machines as with the machine used in the agricultural works—

By Mr. Nash.—You mean the agricultural works of Louisville?

Ans. Yes sir; the Louisville Agricultural Works. For the reason that in that institution I was intimately thrown with all of the machinery used, being first pattern maker, then foreman of the woodworking department; afterwards foreman of the general shops, and assistant superintendent of the general shops, between

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the years 1869 and 1874. The machines seen in the other factories I have seen in passing through these factories, and can only speak of them in a general way. With the machines used at the Avery factory and the agricultural works I was thoroughly familiar, and am perfectly familiar with the details of construction of these machines.

The complainant objects to the foregoing answer, the same as first above stated, and also objects to the machine where the witness has stated that one Bloomfield invented the machine, and also to the machine invented by Mr. Fletcher.

336 Int. 8. Please state whether or not the machine that you have described as having seen in the Louisville Agricultural Works was extensively used, and for producing what work?

Ans. It was extensively used, from the time it was first built, which was in 1872, until 1879, when the Louisville Agricultural Works went out of business. It was extensively used for the reason that the agricultural works, during the greater portion of that time, were producing from 300 to 500 plows per week, and this machine was used on all of the handles for these plows.

Int. 9. This machine that you saw in use in the Louisville Agricultural Works was in the department over which you had control, was it not?

Complainant interposes the same objection as above.

Ans. It was. For a part of the time I was foreman of the woodworking department, and for the remainder of the time was assistant superintendent of the entire works.

Complainant interposes the same objection as above.

Int. 10. Please state how such Louisville Agricultural Works machine compared with the Deere & Company machine as regards the location and arrangement of the bits or knives, and the chip discharging capacity?

Counsel for complainant interposes the same objection as above.

Ans. The knives in the agricultural works machine were slotted knives held in place by bolts or set screws, the same as in the Deere machine. The cutter-head was in halves, or in two parts, the same as in the Deere machine. These parts were separated by a rib or disc, the same as in the Deere machine. Whether the knives were opposite to each other in the cutter-

337 head I do not remember. The cutter-head of the agricultural works mentioned had chip discharging orifices which narrowed from a point where the cutting edge of the knife intersected with the semi-circular groove, and widened out backwardly and outwardly, so as to permit free discharge of chips after they passed through the slotted hole, as they were cut from the handle.

The cutter-head, in all essential particulars, was a duplicate of the Deere cutter-head. It was hung in the same way on the shaft; revolved in the same way, and was used in the same way by the operator. It produced the same class of work, in about the same manner, and with about the same rapidity.

Counsel for complainant interposes the same objection as above.

Int. 11. Please state whether the cutter-head you have described as being in use at the Louisville Agricultural Works was provided with a stop for limiting the cutting action of the knives, and if so please describe such stop?

Solicitor for complainant interposes the same objection as above.

Ans. As I have said, the cutter-head used by the Louisville Agricultural Works had a stop in the lower part of the center of the semi-circular groove. This stop consisted of a ring or
338 disc interposed between the two halves of the cutter-head. The effect of this stop was to leave a rib in the center of the handle untouched by the cutting knives. There was no other stop about the machine.

Complainant interposes same objection as heretofore.

Int. 12. Please state fully what opportunities you have had for becoming familiar with letters patent for inventions, and state also whether or not you have been accustomed to compare the inventions shown and described in letters patent with machinery of various kinds.

Counsel for complainant interposes same objection as above.

Ans. Ever since my connection with the plow manufacturing and agricultural implement business, twenty years ago, it has been my duty in the various houses with which I have been connected to look after the patent matters of these houses, by supervising the getting out of patents, by examining patents in connection with the machines themselves so patented and with other machines; by

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digesting and making opinions upon patent specifications, and, in short, giving to such business the necessary attention that it required, aside from the legal attention which would properly be covered by the services of expert patent lawyers.

Counsel for complainant objects to the answer same as above.

Int. 13. Have you examined and do you understand the specifications and drawings of Letters Patent No. 303,116, granted to Sarah Caverly, as assignee of Amos K. Caverly, being the patent in suit?

Counsel for plaintiff enters same objections as hereinabove.

Ans. I have examined it, and do understand it.

339 Same objection to answer entered by counsel for complainant.

Int. 14. Please examine the cutter-head marked "Defendant's Exhibit Grand de Tour Cutter-head," and state whether or not, in your opinion, such cutter-head embodies the alleged invention shown and described in said patent, and summed up in the claims thereof, giving your reasons for any opinions that you may express?

Counsel for complainant interposes same objection as heretofore.

Ans. I have examined the cutter-head shown to me and find that it possesses the following features in common with the claims set forth in the Caverly specifications, Letters Patent No. 303,116, in suit.

Claim First in said patent covers a cutter-head consisting of a cylinder with a groove in the center of its perphery and recesses from either side, terminating in narrow openings on such groove, for the adjustment of the cutter-knives. The Grand de Tour cutter-head consists of a cylinder with a groove in the center of its periphery, and with recesses from either side terminating in narrow openings on such groove, these recesses permitting the adjustment of the cutter-knives. The Grand de Tour head, therefore, in my opinion, is fully covered by Claim First in the specifications of the Caverly patent, and being built long before the issuance of the Caverly patent, forms a complete anticipation of said patent, so far as Claim First is concerned.

Claim Second of the Caverly patent reads as follows: "A

cutter-head constructed of two cylindrical discs, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head
340 corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disc, diminishing in width as they progress, and terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with knives secured in the openings." The Grand de Tour head differs from the cutter-head described in Claim Second of the Caverly patent only in being constructed of a single cylindrical disc, instead of two cylindrical discs secured together. The Grand de Tour head is the same in form as the Caverly head after the two discs in the Caverly head have been bolted together. Its curve forms a groove in the periphery of the head corresponding to the shape and size of the dressed work. It possesses one or more recesses (in this case two recesses) extending from the outer face of the disc, diminishing in width as they progress and terminating in narrow openings on the groove exactly as set forth in Claim Second of the Caverly patent. These recesses form beds for the cutter-knives, and spouts for the discharge of chips, exactly as in Claim Second; and knives are secured in these openings exactly in the same manner. The only difference therefore, that I can find between the Second Claim of the Caverly specifications and the Grand de Tour head before me, is that the Grand de Tour cutter-head is composed of a single piece forming the cylinder. In the Wiard and agricultural works machines, which I have mentioned before, the heads in both were made of cylindrical halves, so that this feature is an old construction. On page 1 of the Caverly specification I read: "The cutter-head 'B' (this is lines 60 to 65) is of cylindrical form, made of steel, iron or other suitable material, constructed, preferably, of two cylindrical pieces or discs," showing that the double disc is simply a preferred form, and that therefore the single disc in the Grand de Tour head anticipates perfectly the second
341 claim in the Caverly specifications quoted above.

The third claim of the Caverly specifications reads as follows: "A cutter-head constructed of two cylindrical discs, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disc, diminishing in width as they progress, terminating in a nar-

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row opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with slotted knives secured in the openings and adjustable longitudinally therein by set-screws." It will be seen that this claim is identical in language with the second claim of the specifications, except that Claim Three adds to claim two the following clause: "With slotted knives secured in the openings and adjustable longitudinally therein by set-screws." In other words, Claim Three is formed from claim two by the addition merely of the slotted knives adjustable as set forth. I find in the Grand de Tour cutter-head the elements heretofore referred to and covered by claim two, and in addition slotted knives secured in the openings, adjustable longitudinally therein by set-screws, the same being the identical construction called for in the Caverly specifications under Claim Three. I find that the holes in the knives are slotted by loosening a set-screw in the cutter-head and moving the knives longitudinally backward and forward in the cutter-head.

Claim Four in the Caverly patent reads as follows: "The combination of the frame, the cutter-head with groove in its periphery and one or more openings from each side, terminating in a narrow slit on the groove, one or more knives so curved that the bevel on their cutting ends presents a flat surface, and gearing by
342 which the head is actuated." The Grand de Tour cutter-head before me is disconnected from the frame. It possesses the groove in its periphery called for in Claim Four, and heretofore described, and has the one or more openings from each side terminating in a narrow slit on the groove, and it has also one or more knives: but these knives are not curved as called for in Claim Four of the Caverly patent. The knives in the cutter-head before me are flat knives. In the cutter-head before me also the gearing which actuated the cutter-head is absent. I find in the Caverly specifications, page 1, lines 95 to 105, that "If desired, the knives, instead of being concave on their cutting faces, may be made flat;" also that the "curved knife is much more desirable, and is the one I prefer." This limitation of the specification reduces the curved knives to preferred form, and makes the flat knives in a like cutter-head the mechanical equivalent of the curved knife in the Caverly specifications. The frame and gearing shown in the Caverly specifications are ordinary forms of frame work and gearing, and Claim Four, therefore, cannot give to the owner of the Caverly patent any exclusive rights as to such frame work and gearing. If the Grand de Tour cutter-head before me was attached to an ordinary frame work and ordinary gearing, it would, in my opinion, perfectly anticipate Claim Four in the Caverly patent.

The complainant further objects to said answer with respect to all those portions therein where the witness gives it his opinion that the Grand de Tour machine anticipates the invention in suit: said opinion usurping the facts to be found by the court ultimately.

Int. 15. Please state whether or not the machine shown in the
343 said Caverly patent is a practical machine for the purposes for which it is designed, and give your reasons for any opinions that you may express?

The counsel for complainant interposes the same objection as to question last above.

Ans. The drawings in the Caverly specifications show that the cutter knives extend from the center of the semi-circular groove outwardly on each side to the periphery of the cutter-head. The Caverly specifications state, lines 65 to 70, page 2, that "The handles shaped will be sufficiently smooth to go directly to the paint shop without further smoothing or finish." It is evident, from the drawings and specifications therefore, that the Caverly machine was intended to finish the handle ready for painting, and to so finish it without a central rib or projection. Now, such construction would involve, without extreme care on the part of the operator, a complete eating up of the plow handle by the knifes. In other words, as shown in the Caverly specifications, if the plow handle or other wood is rested in the semi-circular groove when the head is in motion, there is nothing to prevent this head from cutting the entire handle away, if the same is allowed to remain upon the cutter-head. There is nothing to regulate the depth which the knives in cutter-head shall cut, so that whilst one handle might be dressed on the cutter-head properly, it would be practically impossible to dress a second handle without taking more or less of the wood away. No two handles could be dressed alike on this machine, and constant care would have to be exercised to prevent the handle from being entirely cut away. A machine, therefore, built according to the Caverly specification, would not be a practical machine to operate.

Complainant interposes the same objection to the answer as hereinbefore entered.

Int. 16. After the bent plow handle has been dressed on the
344 machine referred to by you as being in use by Deere & Company, and for the use of which this suit is brought, what further dressing would be required to render such handle ready for

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use? You may, if you choose, make reference to the handle heretofore placed in evidence and marked "Defendant's Exhibit Defendant's Handle."

Counsel for complainant objects to the question for the same reasons as hereinbefore stated.

Ans. I now take the handle marked "Defendant's Exhibit Defendant's Handle," and find that on the central line of all the parts that have been dressed on the Deere machine, there is a projecting rib about one-sixteenth of an inch above the dressed portions of the handle. This rib would prevent the handle from being a finished handle as it comes from the Deere machine. The rib in question must be taken off by hand labor and the handle finished and sand-papered and smoothed before it goes to the paint shop. The Deere machine, therefore, does not make a finished handle, or a handle such as is claimed to be made by the Caverly machine?

Same objection entered by the counsel for complainant.

I wish to add in relation to the machines used by the Louisville Agricultural Works, and the B. F. Avery factory of Louisville, Kentucky, which machines were built respectively by Mr. Fletcher and Mr. Wiard, that both of these machines were used without hand rest, corresponding to the rest "F" in the Caverly specifications. In this respect they were similar to the Deere machine.

Same objection as before stated entered by complainant's solicitor.

I have also seen a similar handle-rounding machine in use in the factory of Messrs. Kelley & Company, Jefferson, Texas. I did not think of this when mentioning the factories yesterday which
345 I alluded to. As regards date, this was in the year 1881 or 1882.

Complainant's counsel interposes same objection as above stated.

Complainant's solicitor also objects to that part of witness' testimony, from the beginning of the same to the conclusion thereof, which refers severally and respectively to the following named manufacturing establishments, as follows, to-wit: A. H. Patch & Company, Louisville, Kentucky; Hall, Moore & Burkhardt, Jeffersonville, Indiana; Brinley, Miles & Hardy, Louisville, Kentucky; Haiman &

Company, Atlanta, Georgia; Thomas Meikle & Company, Louisville, Kentucky; Hall & Speer, Pittsburg, Pennsylvania; Empire Plow Company, Pittsburg, Pennsylvania; Kelley & Company, Jefferson, Texas; A. H. Patch & Company, Clarksville, Tennessee; and concerning which, each of said several machines, the witness has stated to the effect that he has seen machines for rounding handles in each one of the places named above, and has testified that he had seen in each one of said several manufacturing establishments a machine for rounding bent handles, for the reason that no sufficient statutory notice has been given of the names and residences of the persons respectively having prior knowledge of the thing patented in complainant's letters patent involved in this suit, and where such persons respectively used the same.

The complainant's solicitor objects to the testimony of witness which he has given, with respect to the machine testified to by him as being used by B. F. Avery, Louisville, Kentucky; Louisville Agricultural Works, Louisville, Kentucky, and Herman Fletcher, for the same reasons as last above given.

Also complainant objects to all that part of his testimony in which he makes reference to H. Bloomfield as being an inventor of the Avery machine, and also to H. Fletcher as being the inventor of the Louisville Agricul-
346 tural Works machine, for the reason that no statutory notice of the names and residences of the persons named, each respectively, as having invented said machine respectively, has been given. The complainant's solicitor objects to all the testimony given by the witness in relation to the Grand de Tour machine for the same reasons.

Cross-Examination

By D. B. Nash, Esq., solicitor for complainant.

The complainant, without in any manner waiving any part or parcel, or any portion of the objections which he has before interposed to the testimony of the witness in his examination-in-chief, now proceeds to cross-examine the witness:

Cr. Int. 1. You may state whether or not you have examined in any other manner than in the most general way each of the machines stated in your examination-in-chief to have been used by the following named manufacturing establishments: A. H. Patch

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& Company, Louisville, Kentucky; Hall, Moore & Burkhardt, Jeffersonville, Indiana; Brinley, Miles & Hardy, Louisville, Kentucky; Haiman & Company, Atlanta, Georgia; Thomas, Meikle & Company, Louisville, Kentucky; Hall & Speer, Pittsburg, Pennsylvania; Empire Plow Company, Pittsburg, Pennsylvania; Kelley & Company, Jefferson, Texas; A. H. Patch & Company, Clarksville, Tenn.

Ans. My examination of the machines in the factories referred to in this question has been a general and not a particular examination. My examination of the machines used by Avery, and the Louisville Agricultural Works, was a detailed examination, and my knowledge of these machines was intimate, complete and thorough. I mentioned the machines in general use in the other factories as indicating the state of the art, and to show that machines of the general nature of machines with revolving cut-
347 ter-heads were used largely in plow factories at the dates mentioned. I have not studied the machines in the list of factories given sufficiently to remember all their details, or to know that they would anticipate the Caverly patent.

Cr. Int. 2. You will please state what relation, or in what way Herman Fletcher had to do with respect to the alleged machine owned by the Louisville Agricultural Works. Please explain the same, according to your best knowledge?

Ans. Herman Fletcher was a machinist employed by the Louisville Agricultural Works, for general machine work about this factory. As a part of his duties he got up for the Louisville Agricultural Works their handle-rounding machine. This machine was perhaps partially designed by the superintendent of the works and partially by Fletcher; I could not say absolutely in regard to that, who was the entire designer of the machine.

Cr. Int. 3. Then wherever you have mentioned in your previous examination, the name of Herman Fletcher in connection with any machine, you have reference by such reference to the Louisville Agricultural Works machine?

Ans. The Herman Fletcher and Louisville Agricultural Works machine were the same machine.

Cr. Int. 4. Please state in what manner Edward Wiard was connected with the machine called the Avery machine in your testimony. Please explain that.

Ans. Edward Wiard was the foreman in the plow factory of B. F. Avery. He had general charge of the works, and he designed the Wiard machine. The Wiard machine therefore, and the Avery machine (I do not refer to the Bloomfield machine) were one and the same machine.

Cr. Int. 5. You made mention in your examination-in-chief that H. Bloomfield was the inventor of an Avery machine.
348 You will please explain what relation H. Bloomfield sustained to the machine you refer to. Please explain.

Ans. H. Bloomfield was a designer and inventor of machinery. He was employed by B. F. Avery for the purpose of designing and inventing machines. He came, I believe, from Buffalo N. Y., to Louisville, Kentucky, to act in this capacity for Mr. Avery. In this capacity the designed, made drawings of and superintended the construction of the first handle-rounding machine used in the Avery factory. Neither this machine, nor the Wiard machine, nor the Fletcher machine were patented, so far as I know. The Bloomfield machine was abandoned by Mr. Avery after having spent considerable money in its construction, for the reason that it was not a practical machine, and would not do satisfactory work. The cutter-head used in the Bloomfield machine was taken from that machine by Mr. Wiard and the practical Avery machine was made by using this cutter-head.

Cr. Int. 6. You have made reference in your examination-in-chief, to the B. F. Avery machine, Louisville, Kentucky, and in order to ascertain, as nearly as practicable, the substantial description of the component parts of said Avery machine, and the combination of said several component parts, and the construction of the machine, you will please look at the certain cutter-head referred to in your examination-in-chief, as the Grand de Tour machine, and which is marked "Defendant's Exhibit Grand de Tour Cutter-head," in this case and state whether it is true or not that the said Avery machine or cutter-head consisted of a groove very much like the Grand de Tour machine now before you?

Ans. The groove in the Avery machine was very similar to the groove in the Grand de Tour cutter-head. This groove was of the shape and size desired to be given to the rounded plow handle. The groove in the Avery machine was different from the groove in the Grand de Tour machine in that it had at the
349 bottom of the groove a dividing rib, which is not possessed by the Grand de Tour cutter-head. That is the only difference there was as to the groove.

Cr. Int. 7. Your attention now is called to the particular manner in which the cutter-knives are adjusted to or into the cutter-head, Grand de Tour machine. I will ask you whether or not there is any material or substantial difference between the said Grand de Tour machine, and the said Avery machine with respect to the manner in which the cutter-knives are adjusted to or into the cutter-heads of each machine respectively. Please explain to the best of your ability.

Ans. In the Grand de Tour cutter-head the knives are made in pairs situated opposite to each other in the periphery of the wheel or head. The adjustment of these knives is longitudinal by means of slots and set-screws. My recollection is that in the Avery machine the knives were single knives with a slotted division in the center to receive the rib heretofore alluded to, and that these knives were longitudinally adjustable into and out of the slotted openings in the cutter-head by means of set-screws and slots, substantially as in the Grand de Tour head.

Cr. Int. 8. I then understand you to say that the cutter-knife in the Avery machine consisted of one single piece having on the cutter-end thereof a shape to fit the groove properly, and having a little slot below the center portion of the same with a view of creating a bead upon the material in the process of use?

Ans. Yes sir, exactly so.

Cr. Int. 9. You may state the angle of inclination of the cutter-knives in the Avery cutter-head, as compared with that in the Grand de Tour cutter-head?

Ans. I do not remember the exact angle of inclination in the Avery cutter-head, but this angle was such that the knives
350 did their work properly, and was probably substantially similar to the angle in the Grand de Tour head. An exact comparison is of course impossible.

(Counsel for the complainant objects to that part of the answer relative to the working qualities of the machine.)

Cr. Int. 10. Then I understand you to say and mean that the cutter-knives in the Avery machine were adjusted to the cutter-head and into the cutter-head, and that the knives in said Avery machine sustained the same angle and the same relation to the groove of the cutter-head, with respect to angularity, and in all other respects, as the cutter-knives in the said Grand de Tour machine sustained to the groove in its cutter-head?

Ans. I think I have fully explained the similarity and differences in my previous answer. I do not see any new point that you want to get out there.

Cr. Int. 11. No, it's really about the same thing?

Ans. I cannot add anything to what I have said in my previous answers.

Cr. Int. 12. Upon personal inspection by any one having any ordinary knowledge of machines generally—of the Avery machines and the knives thereto and therein attached, and also of the Grand de Tour machine, and of the knives thereto and therein at-

tached, I will ask you whether or not to such a person there would be any, apparently any, material or substantial difference in the mode and manner in which the knives are adjusted to each of the said machines respectively?

351 Ans. I have stated the differences and similarities which exist between the two machines. How these differences and similarities would strike a third person I am unable to state.

Cr. Int. 13. Then I understand you to state substantially that the adjustment of the knives in the Avery machine and the Grand de Tour machine are similar to such a degree, that you are unable to state whether any difference would be perceived by any person having knowledge of machinery generally, upon inspection of such machines.

(Objected to by counsel for defendant, as calling for the useless repetition of an answer already given three or four times.)

Ans. I am unable to understand how you obtain your understanding just set forth from my previous answers to the questions above.

Cr. Int. 14. I understand you to say in your answer second above, that you are unable to state whether any person having a general knowledge of machinery would discern any difference between the adjustment of the knives in the Avery machine and the adjustment of the knives in the Grand de Tour machine. Do you still adhere to such statement?

Ans. I have made no such statement. All I have said is simply that I do not know what a third person would think about the machines in question. I can only give what I know and what I think.

Cr. Int. 15. You may state whether or not the sides of the knife of the cutter-head in the Avery machine did not pass into and through the cutter-head at right angles to the sides of the cutter-heads?

Ans. The knives in the Avery cutter-head did pass through the cutter-head from side to side, and were at right angles to the planes of the sides.

352 Cr. Int. 16. You may state if it is not true that the recesses in each side of the cutter-head, just beneath the cutting ends of the knives, were not similar to the recesses below the cutting portion of the knives in the Grand de Tour machine? State as nearly as you can.

Ans. It was very similar in both machines. This throat or opening enlarged from the point where the knife entered the curve

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backwardly and outwardly, so as to present an open throat for the ready discharge of chips.

Cr. Int. 17. Please state whether each knife in the Avery head, being one piece, was not fastened or fixed to the cutter-head, in the manner similar, or almost precisely, to the manner in which each knife is fixed to the cutter-head in the Grand de Tour machine. What I mean is, is it not true that the knife of the Avery machine was secured to its place by one bolt,—the knife consisting of one piece. State according to your remembrance.

Ans. My recollection is, that each knife in the Avery cutter-head was secured to its bed in the cutter-head by a single set screw passing through the slotted hole in the knife, permitting the longitudinal adjustment thereof. This is similar to the set screw and the slotted holes in each of the knives in the Grand de Tour machine.

Cr. Int. 18. State whether or not there were not portions of each side of the Avery machine quite similar to that cut away in the Grand de Tour machine, except that there is no excavation clear through the machine, as is shown in the Grand de Tour machine?

(Counsel for defendant objects to question as immaterial.)

Ans. My recollection is, that the Avery cutter-head was cut away on each side of the central web, somewhat similar to the manner of the Grand de Tour cutter-head, and simply for the
353 purpose of lightening the head by reducing the weight of the material therein.

Cr. Int. 19. State whether or not, in the Louisville Agricultural cutter-head, to which you have referred in your examination-in-chief, contained a groove in its periphery similar to the groove in the Grand de Tour cutter-head, and if any differences existed, please state what same are?

Ans. The groove in the cutter-head of the Louisville Agricultural Works machine, was similar in general form to the groove in the Grand de Tour head; shape in both cases being the shape desired to be given to the work operated upon.

In the Louisville Agricultural Works cutter-head at the center of the bottom of the groove was a dividing ring or disk which seperated the two halves of the head, whereas, in the Grand de Tour machine the head is solid. The outside rims which bound the groove on the periphery of the cutter-head in the Grand de Tour machine, are divided by knives. In the Louisville Agri-

cultural Works machine, these rims were solid for perhaps one-quarter or three-eighths of an inch back from the extreme outside edge thereof. For the reason above given, the groove in the Agricultural Works machine was deeper than the groove in the Grand de Tour head.

Cr. Int. 20. State whether or not the sides of each knife in the Louisville Agricultural Works machine, in the process of being adjusted to the cutter-head, passed into the plane of the sides of the cutter-head to a point very near to the center of the groove or cutting end of such knife, by being carved out in such a manner as to conform to the initial curvature of the groove on each side. Is not that substantially true? If not, state wherein it is not true?

Ans. The side knives in the Louisville Agricultural Works cutter-head, were adjusted to the central groove from the side and rear of the slotted portion, or opening, in the groove; such
354 adjustment being made by means of a slotted hole in the face of the knives, and a set screw to hold these knives in position in a similar manner to the like adjustment in the Grand de Tour head.

Cr. Int. 21. Then I understand you to mean that the adjustment of the knives in the side of the cutter-head, and into its proper place in the cutter-head, and that after the same is so adjusted in the cutter-head, that the position of the knives and the fastening or fixing the knives to the cutter-head, are very similar to the position of the knives and the fastening of the same in the Grand de Tour cutter-head?

Ans. Such position and such adjustment were quite similar to the position and adjustment in the Grand de Tour head, but were more similar, and more nearly like the position and adjustment in the Deere head, used in defendant's machine.

(That part of the answer beginning "but was more like the Deere head" to the close of the answer, is objected to by complainant as not responsive.)

Cr. Int. 22. Is it not true that the knives in the Louisville Agricultural Works head were adjusted into the machine—into the cutter-head—having the body of the knife longitudinally adjusted very nearly at right angles with the plane of the sides of the cutter-head?

Ans. My recollection is, that the knives in the Louisville Agricultural Works machine were not at right angles to the plane of the sides of the cutter-head, but were at an incline or angle thereto. They were longitudinally adjustable into the cutter-head.

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Cr. Int. 23. In the manner stated?

Ans. Longitudinally adjustable into the cutter-head, as above
355 stated. Whilst this adjustment was similar to the adjustment in the Grand de Tour head, it was more nearly identical with the adjustment in the head used by the defendants in their machine at Moline.

(That part of the foregoing answer referring to the Deere machine, is objected to by counsel for complainant as not responsive.)

Cr. Int. 24. Then I understand you that the knives in the Louisville Agricultural Works machine were adjusted into the sides of the cutter-head, longitudinally in the general manner in which the knives are adjusted in the Grand de Tour machine. Am I correct?

Ans. The manner of adjustment, as stated, was somewhat similar to the adjustment in the Grand de Tour machine, but more similar to the adjustment in the Deere machine.

(MR. NASH: That part of the answer referring to the Deere head is objected to as not responsive.)

Cr. Int. 25. I will ask you whether or not, in the Louisville Agricultural Works machine, on each side thereof, there were not excavations in the same similar to that in the Grand de Tour machine?

Ans. There were in the Louisville Agricultural Works cutter-head, excavations on the sides of the head to lighten the head, as is the case in the Grand de Tour machine, and all similar cutter-heads.

Cr. Int. 26. I understand you that the Louisville Agricultural Works dissolved about 1879. Is that true, according to your best knowledge?

Ans. The Louisville Agricultural Works went out of business in the latter part of 1879 or the fore part of 1880. The machinery and assets were sold at that time and the company's
356 affairs wound up.

Cr. Int. 27. State whether or not it is true that the cutter-knives in the Agricultural Works machine, after the same were adjusted in the machine ready for operation, that the external linear edges of the body of the knives as set into the side of the machine, were not parallel or substantially parallel with the plane of the sides of the cutter-head. Just like this (pointing to the Grand de Tour head)?

Ans. My recollection is, that the outside edges of the knives

in the Agricultural Works machine were not parallel with the plane of the sides of the machine.

Cr. Int. 28. I will ask you if the body of the knife—general body of the knife—when adjusted in the Agricultural Works machine, was not substantially parallel with the plane of the sides of the cutter-head?

Ans. My recollection is that it was not.

Cr. Int. 29. I will ask you whether or not the cutting ends of the cutter-knives in the Louisville Agricultural Works machine were not formed by carving out the end of the knife in a manner similar to that in the Grand de Tour machine?

Ans. The cutting ends of the knives in the Agricultural Works machine were formed by carving out these knives in a manner similar to the carving out of the knives in the Grand de Tour machine and other similar cutter-heads.

Cr. Int. 30. State whether or not, when the knives of the Louisville Agricultural Works machine—when they were adjusted in the machine ready for work—the ends of each cutter-knife—the cutter end of each knife approached and came in contact with the central rib, so that the lower part of the bit would come in contact with said rib?

357 Ans. The knives in the Louisville Agricultural Works machine were adjusted close up to the central rib, dividing the halves of the cutter-head exactly as is the case in the machine used by Deere & Company.

(That part of the answer referring to the Deere machine is objected to by complainant as not responsive.)

Cr. Int. 31. State whether or not the knives in the Louisville Agricultural Works machine, in case such knives were adjusted in the machine opposite to each other, would the cutter ends of each of those knives sustain the same relation to the groove of said machine, as the cutter-knives and the cutter end of such cutter-knives sustain to the groove in the Grand de Tour machine?

Ans. My recollection is, that the knives in the Grand de Tour machine were not set opposite to each other, but alternated, as in the machine used by Deere & Co., and that the relation of these knives to the groove was almost identical with such relation in the Deere & Co. machine, and was therefore not so exactly disposed as in the Grand de Tour cutter-head.

(All that part of the answer relating to the Deere machine is objected to by complainant as not being responsive.)

Cr. Int. 32. I ask you now whether the opposite end of the

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—whether the end of the bottom of the knife, opposite to the cutting end of the knife when adjusted in the machine and fixed there, rested in whole or in part below the plane of the side of the machine?

Ans. I do not remember exactly. I should say to the best of my recollection that this end was partly below the plane of the side of the machine.

Cr. Int. 33. State whether or not you are a member of
358 Deere & Co.; belong to the corporation?

Ans. Deere & Co. is a corporation. I am a stockholder in the corporation.

Cr. Int. 34. You are interested in the event of this suit, are you?

Ans. Yes sir.

C. H. POPE.

Deposition of Isaac Watt.

MR. ISAAC WATT, a witness produced on behalf of the defendant, being first duly sworn, deposes and says in answer to interrogatories to him propounded by defendant's counsel, as follows, to-wit:

Int. 1. You may please state your name, age, residence and occupation?

Ans. Isaac Watt; 59 years; residence, Moline, Illinois, foreman of the wood department of the Moline Plow Company.

Int. 2. Are you acquainted with one J. W. Bartlett?

Ans. Yes sir, I am.

Int. 3. Was Mr. Bartlett ever connected with the Moline Plow Company; and if so, when, and in what capacity?

Ans. Well, he was connected with it in the same position that I am holding now—foreman of the wood department. I cannot tell just the year. It has not been more than three years since he left there. I do think that it has been quite that long.

Int. 4. In the business for the Moline Plow Company is it and has it been for some years necessary to finish plow and cultivator handles for attachment to their machines?

Ans. Yes sir.

359 Int. 5. Please state, if you know, upon what make of machine, or kind of machine, the plow-handles now being turned out by said Moline Plow Company, are dressed on their bent portions?

(The complainant objects to the question for the reason that it seeks to elicit from the witness matters about a machine in relation to which the defendant has given no

statutory notice as to the name of the person, and place of his residence, alleged to have knowledge of the thing patented in the invention in controversy in this case, and of the place where such persons used such machines.)

Ans. Mr. Bartlett claims to have made it.

Int. 6. At the time the machine now in use by the said Moline Plow Company was constructed, was Mr. Bartlett occupying the position that you now occupy?

(Same objection entered by complainant as above.)

Ans. Yes sir.

(Same objection entered by solicitor for the complainant.)

Int. 7. And was such machine put in by his advice?

(Counsel for complainant enters the same objection as above.)

Ans. By Mr. Bartlett's advice.

Int. 8. Yes sir.

Ans. Yes sir.

(Same objection entered by counsel for complainant.)

Int. 9. Prior to putting into use the machine that Bartlett had put in, did the Moline Plow Company have in use any machine for the dressing of bent parts of plow handles?

(Counsel for complainant interposes the same objection.)

360 Ans. Yes sir.

Int. 10. Did the one which was in use prior to the one which you now have in use, do satisfactory work?

(Same objection is entered by counsel for the complainant.)

Ans. Well, I always thought it did, but Mr. Bartlett thought different; that is why he got up that other machine, or why he claimed to.

Int. 11. State whether or not the said Moline Plow Co. dressed a large number of plow-handles on said old machine, which said plow-handles were satisfactory, and were applied to machines that were sold by them?

(Counsel for complainant objects to question for reasons before given.)

Deposition of Isaac Watt.

Ans. Yes sir, they did. They dressed a great number of handles on that machine.

Int. 12. Prior to the use of the present machine, which was put in at the advice of Bartlett, did the Moline Plow Company, so far as you know, ever use any machine for this purpose, other than the one you have just referred to?

(Complainant objects to the question for the reasons hereinbefore stated.)

Ans. No, sir.

Int. 13. Can you produce the old cutter-head that you have referred to, or a portion of the same, that was in use by the said Moline Plow Company prior to the use by it of the Bartlett machine?

(Same objection interposed by counsel for complainant.)

Ans. I can, sir; a half of the head.

(Counsel for the complainant interposes the same objection as above.)

361 Int. 14. Can you state about when the first cutter-head, a portion of which you have produced, was placed in use by the Moline Plow Company?

(Counsel for complainant interposes same objection as (above.)

Ans. Well, I cannot say exactly whether it was in the spring or fall of 1878. It was in that year.

(Same objection as above made by the counsel for the complainant.)

Int. 15. You may state what was the quality of the work produced on that old cutter-head as compared with the cutter-head of the machine put in by Bartlett at the said Moline Plow Company's Works?

(Counsel for complainant interposes same objection as above.)

Ans. Well, I did not see but what it was just as good as the work we are doing now on that machine.

(Counsel for complainant interposes same objection as above.)

Int. 16. Please state whether there is anything on or about

the portion of the cutter-head that you have produced by which you are enabled to identify it, and also to fix any date at which you know it was in use by said Moline Plow Company.

(Same objection by counsel for complainant as above.)

Ans. Yes sir, if you will let me take that a minute, I think I can convince you. You will notice there are small caps in there (pointing to a cap at the side of the knives) that was put in there in the fall of '80. I had it done by one of the machinists there. I superintended it. Do you want I should tell why I know that?

362 Int. 17. Yes sir.

Ans. That summer I was in Rock Island in the County Treasurer's office. I left the Company—

Int. 18. That was the Moline Plow Company?

Ans. Yes sir,—the first of March, and returned the first of September; and when I came back they were using this machine. They had been using it right along, and the head had gotten worn so that the shavings got in and tore the handle, and I had those caps put in there to prevent that.

Int. 19. That was after you returned from Rock Island?

Ans. Yes sir, after I returned from Rock Island. That was along the first of September, 1880; and after that time it did good work.

Int. 20. Please state how the other half or portion of the head compared with the portion that you have produced?

(Same objection entered by counsel for complainant.)

Ans. The other was just exactly like this, only it was the left hand. This is the right hand half of the head you see, and the other was the left. Just the same, exactly, only the knives were set in on the left hand side.

(Counsel for complainant enters the same objection as above.)

Int. 21. Did you ever know one Amos K. Caverly?

(Same objection by complainant.)

Ans. Yes sir, I was somewhat acquainted with him.

Int. 22. Did he ever work in the shops of the Moline Plow Company?

(Counsel for complainant interposes the same objection as above.)

367 Ans. Yes sir, he did work there.

Deposition of Isaac Watt.

(Counsel for complainant interposes same objection.)

Int. 23. Can you state, of your own knowledge, whether he ever saw in operation, or out of operation, the cutter-head of which you have produced a half.

(The complainant objects to the foregoing question for the reason that it seeks to elicit from the witness matters and things which have not been set up in the pleadings as a defence, and as being irrelevant to the issues, and immaterial and incompetent.)

Ans. Yes sir, he has. He worked there at the time that they were running the machine, and he saw it after he left there.

(Counsel for complainant interposes the same objection to the answer as last above.)

Int. 24. Can you state about when he left there; what year?

(Same objection as last above.)

Ans. Well, I cannot exactly; I could I presume by going and looking at my books. I think it was along in 1879 somewhere. I cannot tell exactly—

Mr. Nash.—What do you mean, left work?

Ans. Yes sir, left Moline Plow Company.

Int. 25. Can you state whether or not he saw such cutter-head frequently?

(Same objection interposed by counsel for complainant as last above.)

Ans. He saw it several times, I should judge. I could not tell how many. He saw it frequently, I should think, because he was there and seen it in operation.

368 (Same objection interposed by counsel for complainant as last above.)

Int. 26. I understand you to mean that you yourself have seen him examine such cutter-head. Is that correct?

(Counsel for complainant interposes same objection as last above.)

Ans. Yes sir.

(Same objection as last above interposed by counsel for complainant.)

Int. 27. Now can you state during what year, or prior to what time he saw such machine? Any year, or back of any year.

(Same objection entered by counsel for complainant as last above.)

Ans. Well, I think it must have been along in '79, somewhere.

(Same objection entered by counsel for complainant as last above.)

Counsel for defendant offers in evidence the one-half of cutter-head produced by the witness, and the same is marked "Defendant's exhibit Moline Plow Company Cutter-head."

(Objected to by counsel for complainant for the reasons first above given.)

Int. 28. Do you know what has become of the other half of the cutter-head of which you have produced one-half?

(Objected to by counsel for complainant for reasons before given.)

Ans. No sir, I do not.

(Answer objected to by counsel for complainant for reasons above.)

369 Int. 29. Is it your belief that said other half has been lost, and have you made inquiry and search for the same?

(Counsel for complainant objects for the same reasons as above mentioned.)

Ans. Yes sir, I have searched thoroughly for it, and have had others search for it, and have inquired for it.

(Answer objected to by counsel for complainant for reasons above given.)

Cross-examination of the witness is waived by counsel for complainant.

ISAAC WATT.

PETER NELSON, a witness produced on beha
being first duly sworn, deposes and says,
rogatories to him propounded by defendant's counsel, A. H. Adams, Esq., as follows, to-wit:

Int. 1. You may state your name, age, residence and occupation?

Ans. Peter Nelson; age, 45; reside in Moline, Ills.; occupation, machine tender, Moline Plow Co.

Int. 2. Are you employed by the Moline Plow Company of Moline, Ills.?

Ans. Yes sir.

Int. 3. Please look at the portion of the machine now shown you and state what it is, if you know?

Ans. That is part of a cutter-head used for rounding the necks of handles, and George Stevens brought it from the southern part of the State, I think, and they used it in rounding the necks of handles.

(Complainant objects to the foregoing answer and the
370 question to which such answer is made, for the reasons as stated in the first, second, third, etc., interrogatories in the examination of Isaac Watt, the foregoing witness, the witness last above examined.)

Int. 4. The cutter-head which you have referred to, and which is marked "Defendant's Exhibit, Moline Plow Company Cutter-head" you say "they used it for trimming the necks of plow-handles." Who do you refer to by "they."

(Complainant interposes the same objection to the question as last above.)

Ans. The Moline Plow Company.

(Counsel for complainant interposes the same objection as last above.)

Int. 4. Can you state about when such cutter-head was first used, or during what years the Moline Plow Company used it?

(Same objection as last above, made by the complainant's solicitor.)

Ans. It was in the winter—in the winter or else early in the spring of 1878.

(Same objection entered by counsel for complainant as last above.)

Int. 6. Is the exhibit referred to a complete cutter-head?

(Counsel for complainant interposes the same objection as last above.)

Ans. That is one-half of it only. There were two sets, one for the top side and one for the bottom side of the handle. This is only one-half of one of these sets.

(Same objection entered by counsel for complainant as above.)

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Int. 7. Please state about how many years such cutter-head was used by the Moline Plow Company?

(Counsel for complainant interposes same objection as above.)

Ans. Well, it was used—I think it was used for about five years or probably more: until they concluded to make a new one.

(Counsel for complainant interposes same objection as above.)

Int. 8. During the time that it was in use by the Moline Plow Company, during the years that you have mentioned, did you see it in use for the purpose of dressing or trimming plow-handles?

(Same objection entered by counsel for complainant as above.)

Ans. Yes sir.

(Same objection to answer by counsel for complainant as last above.)

Int. 9. Can you state whether or not the plow-handles dressed or trimmed on such cutter-head during those years, were satisfactory plow-handles to be used, or were used, upon the machines of the Moline Plow Company?

Counsel for complainant interposes same objection as above noted.

Ans. They seemed to be satisfied with them.

Counsel for complainant interposes the same objection to answer as last above.

Int. 10. Was your work during that time near the machines having the cutter-heads about which you have testified?

Counsel for complainant interposes the same objection as above.

Deposition of Peter Nelson.

Ans. Yes sir.

372 Same objection interposed by counsel for complainant as above.

Int. 11. Did you know one Amos K. Caverly?

Counsel for complainant interposes same objection as last above.

Ans. Yes sir.

Complainant's counsel interposes the same objection to the answer as above.

Int. 12. Did he ever work for the Moline Plow Company?

Same objection by counsel for the complainant.

Ans. Yes sir.

Same objection interposed by counsel for complainant as above, and as immaterial in relation to Mr. Caverly.

Int. 13. Can you state about what years Mr. Caverly worked for the Moline Plow Company?

Counsel for complainant objects to the question as immaterial.

Ans. He worked there in the 70s, but I do not think he worked there after 1880. He may have done so, but I am not positive.

Counsel for complainant interposes the same objection as above.

Int. 14. Can you state whether the said Mr. Caverly ever saw the cutter-head about which you have testified, in use?

Objected to by counsel for complainant as immaterial and irrelevant, and also for the reason that no defense has been set up in the pleadings to which said defense would be pertinent or relevant.

Ans. Yes sir.

373 Int. 15. Can you state any years during which you know that the said Mr. Amos K. Caverly saw such cutter-head in use at the Moline Plow Company's shops?

Counsel for complainant interposes the same objection,

and also the same objection as was interposed to the evidence of Isaac Watt in reference to the same subject matter.

Ans. He seen it in use in 1878, '79, and I think 1880. I will not say positively, and he did come in several times afterwards and see it after he had quit.

Same objection interposed by counsel for the complainant as last above.

Int. 16. After he had quit working at the Moline Plow Company's shops?

Counsel for complainant interposes the same objection.

Ans. Yes sir.

Cross-Examination

of witness waived by counsel for complainant.

PETER NELSON.

376 At Dixon, Illinois, on this twentieth day of February, A. D. 1891, before me, James F. Sanford, a notary public.

Present—A. H. Adams, counsel for defendant; no one appearing on behalf of complainant.

At ten o'clock in the forenoon, pursuant to the annexed notice, the parties to the said cause, by their counsel as above, met at the Nachusa Hotel, in Dixon, Illinois, whereupon the following proceedings were had:

Counsel for defendant offers in evidence the printed Patent Office copy of the drawing of U. S. Letters Patent No. 24,131, dated May 24, 1859, to G. W. Matthews, and the same is marked "Defendant's Exhibit Matthews' 1859 Patent. J. F. S., N. P."

Also, a printed Patent Office copy of the specification and drawings of U. S. Letters Patent No. 114,170, dated April 25, 1871, to E. G. Matthews, and the same is marked "Defendant's Exhibit Matthews' 1871 Patent. J. F. S., N. P."

Also a printed Patent Office copy of the specification and drawing of U. S. Letters Patent No. 118,931, dated September 12th, 1871, to E. P. Halsted, and the same is marked "De-
377 fendant's Exhibit Halsted's Patent, J. F. S., N. P."

Also a printed Patent Office copy of the specification and

drawing of U. S. Letters Patent No. 140,355, dated July 1, 1873, to A. B. Farquhar, and the same is marked "Defendant's Exhibit Farquhar Patent, J. F. S., N. P."

Hereupon a recess was taken until two o'clock p. m. of this day, to await the expected arrival of complainant's counsel.

At two o'clock p. m., February 20th, 1891, met by agreement at the office of James F. Sanford, in the City of Dixon.

Present—D. B. Nash, for complainant, and A. H. Adams, for the defendant.

Deposition of John W. King.

JOHN W. KING, a witness produced on behalf of the defendant, deposes and says in answer to interrogatories to him propounded as follows:

Int. 1. State your name, age, residence and occupation.

Ans. John W. King; age 56 years; residence Dixon, Illinois; I am foreman in the wood department in the Grand de Tour Plow Shops.

Int. 2. I call your attention to "Defendant's Exhibit Grand de Tour Cutter-head" and ask you to state whether or not you ever saw said exhibit before to-day, and if so, when first and where?

Ans. Well, I saw it before; it was the second day of January nineteen years ago last, in the Grand de Tour Plow Company's shop, at Dixon, Illinois.

Int. 3. Was the cutter-head last referred to in use when you saw it, nineteen years ago?

Ans. Yes sir.

378 Int. 4. What work was done on such cutter-head, in the Grand de Tour Plow Company's shops?

Ans. The plow handles were cut square, then bent, then rounded on this machine.

Int. 5. How was the exhibit used to round or dress the plow handles?

Ans. The bent plow handle was placed in the center groove of the cutter-head while such cutter-head was revolving, and the action of the knives cut away the necessary amount of the wood.

Int. 6. You may state whether or not the Grand de Tour Plow Company dressed many thousand plow handles on said exhibit?

Ans. They did.

Int. 7. Did such cutter-head dress the plow handles in a satisfactory manner?

Ans. It did.

Int. 8. Do you know why the Grand de Tour Plow Company desisted from further use of such cutter-head, and if so, please state the reason. Deposition John W. Ki

Ans. I think the main reason was that they bought the plow handles cheaper necked.

Int. 9. How long have you been employed by the Grand de Tour Plow Company.

Ans. Nineteen years the second of January last.

Int. 10. About how long ago did the Grand de Tour Plow Company discontinue the use of the cutter-head about which you have testified?

Ans. I think about eight or nine years.

379 Cross-examination waived.

Complainant's solicitor objects to each and every of the foregoing questions and answers thereto of this witness; First, the same is irrelevant and immaterial; and Second, for the reason no sufficient statutory notice has been given of the name and residence of the person having knowledge or use of the thing patented and described in complainant's bill and the place where such person used the same.

JOHN W. KING.

Subscribed and sworn to before me, by John W. King, this twentieth day of February, A. D. 1891.

[SEAL] JAMES F. SANFORD,
Notary Public.

Also at the time and place last aforesaid:

Present—D. B. Nash, for complainant, and A. H. Adams, for the defendant.

HENRY T. NOBLE, a witness produced on behalf of the defendant, deposes and says in answer to interrogatories to him propounded, as follows: Deposition of Henry T. Nobl

Int. 1. State your name, age, residence and occupation?

Ans. Henry T. Noble; age 60 years; Dixon, Illinois; I am mayor of Dixon, vice-president and one of the directors of the Grand de Tour Plow Company; I have retired from active business.

Int. 2. I call your attention to "Defendant's Exhibit Grand de Tour Cutter-head," and ask you to state whether or not you have seen such exhibit before to-day, and if so, when and where?

Deposition of Henry T. Noble.

Ans. I have seen the exhibit, or one exactly like it. I first
380 saw this exhibit in the spring of 1869, in the Grand de Tour Plow factory, at Dixon, Illinois; we called this exhibit a plow-handle necker machine.

Int. 3. Please state, if you can, how long such exhibit was used by your company, and what portion of the plow handles were operated upon by said exhibit?

Ans. I cannot state exact date that we took this machine out of the factory, but I think it was seven or eight years ago. This was one of the machines brought from Grand de Tour to Dixon at the time of the removal of factory to Dixon in the spring of 1869, and for several years we necked all or nearly all of our plow handles on this machine, but after a few years we purchased a portion of our plow handles bent and dressed, and from that time until the machine was taken out of the factory we dressed part of our handles on this machine. We have dressed no handles on this machine since it was taken out of the factory.

Int. 4. To whom did you dispose of the exhibit after it was taken out of the factory?

Ans. My recollection is, to Deere & Company, of Moline, or some representative of that house.

Int. 5. Please state whether or not the cutter-head referred to did satisfactory work, and whether or not during the time it was in use in your factory, many thousand handles were dressed by or upon it?

Ans. It gave satisfaction at the time it was used, and thousands of handles were dressed upon it annually. Before we discontinued the use of the machine, another machine was invented that finished the handle a little better near the extreme end where the cut was partially against the grain. The handles that
381 we bought were finished a little smoother on the under side, near the extreme outer end.

Complainant objects to each and every of the foregoing questions and answers thereto: first, the same is irrelevant and immaterial; and second, for the reason that no sufficient statutory notice has been given of the name and residence of the person having knowledge or use of the thing patented and described in complainant's bill, and the place where such person used the same.

Cross-examination waived.

HENRY T. NOBLE.

Deposition of Theron Cumins.

THERON CUMINS, a witness produced on the part of the defendant, deposes and says in answer to interrogatories to him propounded as follows:

Int. 1. Please state your name, age, residence and occupation.

382 Ans. Theron Cummins; age 65 years; residence, Dixon; president of the Grand de Tour Plow Company.

Int. 2. How long have you been connected with the Grand de Tour Plow Company?

Ans. Twenty-five years or more.

Int. 3. Please examine the head now shown you, marked "Defendant's Exhibit Grand de Tour Cutter-head," and state whether or not there was ever in use in the Grand de Tour Plow Company's shops such cutter-head or a cutter-head similar thereto?

Ans. We had in our shops for several years a cutter-head working on the same principle as this.

Int. 4. About when first was such cutter-head that you have referred to, used by your company, and for how long?

Ans. Well, the cutter-head I have referred to was in use in the shops when I first went into business at Grand de Tour, Illinois, over twenty-five years ago.

Int. 5. Was such cutter-head like the exhibit referred to in respect to the groove on the periphery, and the location of the bits or knives?

Ans. As far as I can discover, it is the same.

Int. 6. Please state whether or not such cutter-head was used by your company in the dressing successfully of many thousand plow handles?

Ans. Yes sir, it was. I say successfully, with the exception that it was necessary to smooth them up in some other manner after running through this machine.

Complainant's counsel interposes to each and every one of the foregoing questions and answers thereto the same ob-

383 jections which are interposed to the testimony of the witnesses, John W. King and Henry T. Noble, witnesses above examined.

Cross-examination waived.

THERON CUMINS.

Subscribed and sworn to before me by Theron Cumins, this 21st day of February, A. D. 1891.

JAMES F. SANFORD,
Notary Public.

[SEAL]

Deposition of John D. Wiley.

JOHN D. WILEY, a witness produced on behalf of the defendant, deposes and says in answer to interrogatories to him propounded, as follows:

Int. 1. Please state your name, age, occupation, and place of residence?

Ans. John D. Wiley; 52 years; machinist; Grand de Tour, Illinois.

Int. 2. Did you ever work for the Grand de Tour Plow Company of Dixon, and if so, during what time?

Ans. I worked for the Grand de Tour Plow Company in 1863, and then in 1865, commenced work again and worked until about twelve years ago.

Int. 3. Please state whether or not you ever saw in use in the 384 shops of the Grand de Tour Plow Company, during the time that you say that you were employed there, the head now shown to you marked "Defendant's Exhibit Grand de Tour Cutter-head?"

Ans. That pulley, to the best of my recollection, is one of my make, unless I am deceived in the private mark on the knives.

Int. 4. By the private mark on the knives, do you have reference to the small punch marks on the sides of these knives?

Ans. Yes sir.

Int. 5. During the time that you were employed in the shops of the Grand de Tour Plow Company, did you see the exhibit referred to, in use?

Ans. Yes sir.

Int. 6. What was it used for?

Ans. For necking plow handles.

Int. 7. Were many plow handles necked or dressed on such exhibit during that time?

Ans. All plow handles that they used were necked on that exhibit until 1869, and then they bought a good many already necked after that.

Complainant's solicitor interposes the same objections to each and every of the foregoing questions and answers thereto as are interposed to the questions and answers thereto in the testimony of the witnesses King and Noble.

Cross-examination waived.

JOHN D. WILEY.

Subscribed and sworn to before me by John D. Wiley, this 21st day of February, A. D. 1891.

JAMES F. SANFORD,
Notary Public.

[SEAL]

386 JAMES W. ADKISSON, a witness produced on behalf of defendant, being first duly sworn, deposes and says in answer to interrogatories to him propounded by counsel for defendants, as follows:

Int. 1. State your name, age, residence and occupation?

Ans. My age is 58: my residence, 2246 West Market street, Louisville, Kentucky: J. W. Adkisson: and am now a contractor.

Int. 2. Prior to your going into the contracting business, what was your occupation?

Ans. Moulder, for about thirty years.

387 Int. 3. Were you ever in the employ of the Louisville Agricultural Works, of Louisville, Kentucky, and if so, during what years?

Ans. I went there about 1874, and remained there some ten or twelve years.

Int. 4. What was the nature of your work during the time you were employed by said Louisville Agricultural Works; that is, what position did you hold?

Ans. I held the position of foreman of the foundry under Mr. Pope, when he was superintendent, and after he left, for about six years, I was superintendent of the whole concern.

Int. 5. Did said Louisville Agricultural Works, while you were with them, have a machine, having a revolving cutter-head for dressing plow handles?

Ans. Yes sir, they had one, and was made previous to my going there. Was made about 1871 or '72.

Int. 6. About when did you first see that machine?

Ans. The machine was there when I went there, about 1874.

Int. 7. During what years was it in use by said Louisville Agricultural Works?

Ans. From about 1872 to the time they made an assignment. That was sometime in the eighties. I don't remember exactly. It was there when I left.

Int. 8. Was that machine sold, and if sold, when and to whom?

Ans. I don't know what became of the original machine, which was there when I went there.

Int. 9. Were any duplicates of that machine made, and if so, by whom?

388 Ans. There were two made by me during the time I was there.

Int. 10. Were they exact reproductions of the original machine?

Ans. They were.

Deposition of J. W. Adkisson.

Int. 11. Have you seen either of them recently?

Ans. I have.

Int. 12. Have you had made a representation of one-half or side of the cutter-head made by you from the original cutter-head used by the Louisville Agricultural Works?

Ans. Yes.

Int. 13. State whether or not it is an exact reproduction of one side of the cutter-head made by you and also of one side of the cutter-head used by the Louisville Agricultural Works?

Ans. It is.

Int. 14. Will you produce it as an exhibit?

Ans. Yes. I produce it as an exhibit offered in evidence and mark it Defendant's Exhibit "Louisville Head."

Int. 15. When and where was this exhibit "Louisville Head" made and by whom?

Ans. It was made on the 28th of February, 1891, by Thurman & Powell, on Main street, Louisville, Kentucky, at their foundry.

Int. 16. How was it made, and from what?

Ans. It was made from a part of the machine that was made by me from the original old machine. It is a casting made from a part of the machine made by me and that machine was a casting from the original machine, used at the Louisville Agricultural Works.

389 Int. 17. In the cutter-head which was used at the Louisville Agricultural Works, about which you are testifying, how were the knives secured and in what position?

Ans. The knives were fastened on the head with a set-screw, which passes through a slot in the knife, and in the same manner and the same position as the knife on the exhibit.

Int. 18. Were the cutter-heads made by you from the machine used at the Louisville Agricultural Works in any wise different from the original or from this exhibit, "Louisville Head."

Ans. There was no difference.

Int. 19. Have those heads so made by you been in use since the assignment by the Louisville Agricultural Works, and if so, by whom?

Ans. I understand these heads have been used by Tillison & Evertson and by Evertson & Richardson, their successors. I understand also, that Wm. Horman, of New Albany, Indiana, has been using them. The first mentioned and second mentioned parties are near Leavenworth, Indiana.

Int. 20. Are they now in use, and for what purpose, and by whom?

Ans. I understand that Richardson & Evertson, are still using the machines for the manufacture of plow handles, but Mr. Horman is not manufacturing plow handles now. Deposition J. W. Adki

JAMES W. ADKISSON.

391 As illustrations of the prior art, counsel for defendant offers in evidence printed Patent Office copies of the specifications and drawings of the following U. S. Letters Patent:

No. 38,085, dated March 31, 1863, to A. A. Wilder, for machine for pointing and checking hoop-bolts.

No. 68,048, dated Aug. 27, 1867, to M. F. Connett, for improvement in cutter-heads for planing machine.

No. 14,136, dated January 22, 1856, to J. W. Killam, for wood molding machine.

No. 178,067, dated May 30th, 1876, granted to John Lennerton for improvement in machines for making wedges.

392 The complainant objects to the introduction of the foregoing exhibits for the reason that no sufficient statutory notice has been given in defendant's answer, or otherwise, of said exhibits, nor of the several specifications and descriptions therein set forth.

Counsel for defendant also offers in evidence the Patent Office copy of the file wrapper and contents in the matter of the application of Amos K. Caverly for the Letters Patent upon which this suit is brought, and the same is marked "Defendant's Exhibit Caverly File Wrapper."

The complainant's solicitor objects to the foregoing exhibit as being immaterial.

CHARLES H. POPE, a witness produced on being first duly sworn, deposes and says in a tories to him propounded, as follows:

Int. 1. Are you the same Charles H. Pope who has heretofore testified in this cause?

Ans. I am.

Int. 2. Please examine "Defendant's Exhibit Louisville Head," and state what it represents and when and by whom, if you know, it was made and under whose direction it was made?

Ans. I have examined the Exhibit "Louisville Head." It represents or is a duplicate of one-half of the cutter-head casting

Deposition of J. W. Adkisson.

Int. 11. Have you seen either of them recently?

Ans. I have.

Int. 12. Have you had made a representation of one-half or side of the cutter-head made by you from the original cutter-head used by the Louisville Agricultural Works?

Ans. Yes.

Int. 13. State whether or not it is an exact reproduction of one side of the cutter-head made by you and also of one side of the cutter-head used by the Louisville Agricultural Works?

Ans. It is.

Int. 14. Will you produce it as an exhibit?

Ans. Yes. I produce it as an exhibit offered in evidence and mark it Defendant's Exhibit "Louisville Head."

Int. 15. When and where was this exhibit "Louisville Head" made and by whom?

Ans. It was made on the 28th of February, 1891, by Thurman & Powell, on Main street, Louisville, Kentucky, at their foundry.

Int. 16. How was it made, and from what?

Ans. It was made from a part of the machine that was made by me from the original old machine. It is a casting made from a part of the machine made by me and that machine was a casting from the original machine, used at the Louisville Agricultural Works.

389 Int. 17. In the cutter-head which was used at the Louisville Agricultural Works, about which you are testifying, how were the knives secured and in what position?

Ans. The knives were fastened on the head with a set-screw, which passes through a slot in the knife, and in the same manner and the same position as the knife on the exhibit.

Int. 18. Were the cutter-heads made by you from the machine used at the Louisville Agricultural Works in any wise different from the original or from this exhibit, "Louisville Head."

Ans. There was no difference.

Int. 19. Have those heads so made by you been in use since the assignment by the Louisville Agricultural Works, and if so, by whom?

Ans. I understand these heads have been used by Tillison & Evertson and by Evertson & Richardson, their successors. I understand also, that Wm. Horman, of New Albany, Indiana, has been using them. The first mentioned and second mentioned parties are near Leavenworth, Indiana.

Int. 20. Are they now in use, and for what purpose, and by whom?

Ans. I understand that Richardson & Evertson, are still using the machines for the manufacture of plow handles, but Mr. Horman is not manufacturing plow handles now. Deposit J. W. A

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Counsel for defendant also offers in evidence the Patent Office copy of the file wrapper and contents in the matter of the application of Amos K. Caverly for the Letters Patent upon which this suit is brought, and the same is marked "Defendant's Exhibit Caverly File Wrapper."

The complainant's solicitor objects to the foregoing exhibit as being immaterial.

CHARLES H. POPE, a witness produced on behalf of defendant, being first duly sworn, deposes and says in answer to interrogatories to him propounded, as follows: Deposit C. H. Po

Int. 1. Are you the same Charles H. Pope who has heretofore testified in this cause?

Ans. I am.

Int. 2. Please examine "Defendant's Exhibit Louisville Head," and state what it represents and when and by whom, if you know, it was made and under whose direction it was made?

Ans. I have examined the Exhibit "Louisville Head." It represents or is a duplicate of one-half of the cutter-head casting

Deposition of C. H. Pope.

which was used in the machine for rounding plow handles by the Louisville Agricultural Works, between 1872 and 1879, which machine was referred to in my testimony heretofore given in this cause. It was made in response to a letter which I wrote to Mr. James W. Adkisson, at Louisville, Kentucky. Mr. Adkisson was connected with the Louisville Agricultural Works and knew
393 of the existence of their handle-rounding machine. Since I gave my former testimony in this cause, I wrote to him to see if he could find the old handle-rounding machine used by the Louisville Agricultural Works and referred to in my former testimony. As a result of this correspondence, he found a machine which had been made from the Louisville Agricultural Works machine and this casting was made by his instructions, from that machine. It was made at a foundry in Louisville, Kentucky, and I recognize it as an exact duplicate of one-half the cutter-head used by the Louisville Agricultural Works, during my connection with that institution, between the years of 1872 and 1879.

Complainant's solicitor objects to all that part of the foregoing answer relating to facts and circumstances of which he has no personal knowledge, as appears from the answer as being hearsay and incompetent.

Int. 3. How many cutter-heads has Deere & Company in use upon which plow handles are necked or dressed?

Ans. Three.

Int. 4. Are they all alike in every respect? If not, state wherein they differ?

Ans. They are not exactly alike. They differ in size and in the shape and depth of the groove in the periphery of each. These differences being necessary on account of the different portions of the handles which each cutter-head dresses.

Int. 5. Can you produce a representation of any one of the cutter-heads that are used by Deere & Company; if so, please state which one of the cutter-heads, whether the largest or smallest, that it represents, and state also how such representation was made?

Ans. I can produce a representation of one-half of one of the
394 cutter-heads, and I do so produce it, marking it "Defendant's Exhibit Deere Cutter-head." This casting was made from the pattern in our possession (I mean in the possession of Deere & Company), of the smallest cutter-head which we are using for rounding handles. It is a rough casting, not being bored out for a shaft, and not having the groove in the periphery turned out properly, and it is also unfinished in only having the slotted hole for the insertion of one knife made. I had this casting made in

the foundry of Deere & Company, from the original pattern of the smallest cutter-head above referred to, and have had the slotted hole for one of the knives cut out in the casting and a slip of steel inserted therein to show the method of attaching and adjusting the cutter-knife in the cutter-head. The same as is done in the "Defendant's Exhibit Louisville Cutter-head."

D. C.

The complainant's solicitor objects to all that portion of the several answers above given by the witness relating to the said exhibit "Louisville Head," for the reason the same does not appear to have been made from the alleged original head, and for the reason that no sufficient statutory notice has been given in defendant's answer with respect to said machine, and the name of the person having knowledge and use of said machine, and the name of the person having used the same and the place where so used.

Cross-Examination by Mr. Nash.

Without waiving in any manner the objections above set forth to the witness' answer in chief complaint, asks the following cross-interrogatories:

Cr. Int. 6. You stated in your previous depositions taken in this cause in January last, to the effect that you were assistant
395 superintendent of the Louisville Agricultural Works between the years 1869 and 1874?

Ans. Part of the time I was assistant superintendent. For a year and a half, commencing September, 1869, I was pattern-maker; after that I had charge of the woodworking department, and after that was assistant superintendent of the entire works as stated; the above time ending about August, 1874, at which time I went on the road to travel for the agricultural works and introduce its goods.

Cr. Int. 7. State whether or not, during the time you so traveled to introduce the goods of your said company, viz., the agricultural works, after you so commenced to make such sales for the introduction of goods, the several machines belonging to other companies named by you severally in your previous deposition came under your general observation?

Ans. Some of the machines referred to by me came under my observation after I commenced to travel for the agricultural works, as in the course of said travels I visited a large number of plow factories throughout the South. Prior, however, to my going onto the road for the agricultural works, I was familiar with and had seen the machines for handle rounding used in the Avery

Deposition of C. H. Pope.

factory at Louisville, in the Brinley factory at Louisville, in the Patch factory at Louisville, and in the Hall, Moore & Burkhardt factory in Jeffersonville, Indiana.

Cr. Int. 8. In your examination-in-chief you have referred to "Defendant's Exhibit Deere Cutter-head." I will call your attention to that portion of the inner groove of the exhibit and to that portion thereof wherein the knife is adjusted to the groove, and also to the fact that said exhibit shows an excavation running from the shoulder at the lower part of the groove, extending downward about a half an inch, more or less. I would ask you if,
396 when said groove should be properly turned or carved out so as to produce a round or oval shape or curvature so as to present an appearance very closely similar to the groove in the original cutter-head which you have referred to in your examination-in-chief, whether or not such turning or carving out and rendering oval or circular would not entirely or almost entirely cut such excavation out?

Ans. Yes sir: when the cutter-head is turned up and finished this excavation is nearly or wholly obliterated.

Cr. Int. 9. You may state whether or not it is true that Deere & Company use the original cutter head of which you state exhibit is a fair copy of one-half after being dressed up, is used for dressing a portion of the straight portion and body of a plow handle?

Ans. Yes sir, it is. The larger cutter-heads on the Deere machine are used for dressing the curved portion of the plow handle.

C. H. POPE.

Deposition of Charles O. Nason.

CHARLES O. NASON, a witness produced on behalf of defendant, being first duly sworn, deposes and says, in answer to interrogatories to him propounded, as follows:

Int. 1. Are you the same Charles O. Nason who has heretofore testified in this cause?

Ans. I am.

Int. 2. Please examine Defendant's Exhibit Deere Cutter-head, and state what it represents and how it was made?

Ans. It represents one-half of a cutter-head such as is used by Deere & Company in the rounding of parts of plow handles and was cast from the same pattern that one-half of one of the heads now in use was cast from. The difference only being that the exhibit represents an unfinished casting instead of finished.
397 I mean in rounding part of a plow handle, that this particular head is used for the straight part of a plow handle, instead of

the neck or crooked part. The only difference betwixt the heads performing the two operations is, that this head is smaller in diameter and of a somewhat different contour in the groove.

Counsel for defendant formally offers in evidence the casting produced by the witness Pope and marked "Defendant's Exhibit Deere Cutter-head.

Cross-examination waived.

C. O. NASON.

UNITED STATES CIRCUIT COURT, NORTHERN DISTRICT OF ILLINOIS, SOUTHERN DIVISION.

Caverly, Admr., &c., *vs.* Deere and Company. } *In Equity.*

399 DEFENDANT'S EXHIBITS.

Caverly File Wrapper.

P. C. SIMMON,
Notary Public.

DEPARTMEET OF THE INTERIOR,

UNITED STATES PATENT OFFICE.

To all Persons to whom these Presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the File Wrapper and contents in the matter of the Letters Patent granted Sarah Caverly, August 5, 1884, number 303,116, for Improvement in Machine for Rounding Bent Handles.

In testimony whereof, I, Nathaniel L. Frothingham, acting Commissioner of Patents, have caused the seal of the Patent Office to be affixed, this 23rd day of April, in the year of our Lord one thousand eight hundred and ninety-one, and of the Independence of the United States the one hundred and fifteenth.

[SEAL] NATHANIEL L. FROTHINGHAM,
Acting Commissioner.

Filed Oct. 21, 1892.

S. W. BURNHAM,
Clerk.
By E. P. SLOAN,
Ch. Dep. Clerk.

Defendant's Exhibits.

400 Your petitioner, Amos K. Caverly, a citizen of the United States, residing at Moline, in the County of Rock Island, and State of Illinois, prays that Letters Patent may be granted him for the improvement in Machines for Rounding Bent Handles and other woodwork set forth in the annexed specification; and he hereby appoints Herbert D. Blakemore, of the City of Rock Island, State of Illinois, his attorney, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent and to transact all business in the Patent Office connected therewith.

AMOS K. CAVERLY.

401 1 *To all whom it may concern:*

2 Be it known that I, Amos K. Caverly, of Moline, in the County
3 of Rock Island, and State of Illinois, have invented certain new
4 and useful Improvements in Machines for Rounding Bent Handles and
5 other wood-work, of which the following is a specification:
6 Heretofore the bent portions of handles used on cultivators,
7 and for other purposes, have been rounded or ovaled to fit the
8 hands of the operator, by an ordinary draw-knife, in some instances
9 by a lathe with a set-knife and in others by various styles of
10 rotary cutters, and in either case smoothed or finished by running
11 them over a sand belt. The ovaling or rounding of wood-work for
12 other purposes has been accomplished by similar means and finished
13 and smoothed in like manner.
14 My invention relates to machines for forming such round or
15 oval on bent-wood handles,and other wood-work whether bent or
16 straight, and it consists in a cylindrical cutter-head mounted on
17 an ordinary frame and revolving vertically by suitable gearing,
18 constructed preferably of two cylinders or disks bolted together,
19 having in the center of its periphery a groove the shape and size
20 of the curve or oval on the dressed handle, and the cutter-knives
21 adjusted from both sides of the cutter-head into the groove, and
22 in the various other combinations and details of construction
23 hereinafter described and claimed.
24 For convenience I will illustrate and describe my invention
25 with reference to the rounding of bent handles such, for instance,

as are used on plows and cultivators, although it is effective with many classes of wook-work where a rounded or ovaled edge is desired. In the drawings—

Figure I is a rear elevation of a machine embodying my invention and showing particularly the construction of the cutter-head and its mounting on the frame work.

Figure II is a side view of the cutter-head showing the mode of adjustment of the cutters thereto.

Figure III is and edge view of one-half of a cutter-head with parts cut away at *x x* in Fig. II to show the adjustment of the knives, and,

Figures IV and V are detail views of cutter-knives.

A is a bench or frame such as is ordinarily used with emery wheels or like machines, upon which is mounted a cutter-head B, upon a spindle or shaft C, rotated by a pulley D, actuated by a belt or other suitable connection with the main driving shaft. The front end of the machine is provided with a block F securely bolted on standards G upon which the material is rested while being run through the machine.

The cutter-head B is of cylindrical form, made of steel, iron, or other suitable material, constructed preferably of two cylindrical pieces or disks, each having such a curved or concaved cut b' on its inner face extending from beyond its diameter to its periphery, that when they are placed with their curved faces together the curves or concaves in the discs will form a groove in the head the size and shape of the dressed handle.

When the cutter-head is constructed in two pieces, the latter are securely fastened together by bolts passing through bolt holes b^4 in each and nuts b^5 or otherwise prevented from having independent motion. Each of the disks forming the cutter-head has one or more openings or ditches, flaring at the top on the outer face thereof, decreasing in width in their inward progress and terminating at the bottom in narrow crescent-shaped openings b^2 in the curve on the inner face of the disk, the metal being concaved and sharply inclined at one end of the recesses, as at b^3, to permit the ready shedding of the chips from the cutter, and convexed and inclined in like manner at the opposite end to form beds for the concaved knives.

Defendant's Exhibits.

The cutter-knives E are thin plates of steel, beveled at their cutting ends like ordinary plane blades or bits, concaved on their cutting faces to fit a convexed bed at one end of the openings in the cutter-head adjustable thereon to regulate the depth of their cutting action.

By set screws c' working through a slot c in the knives and secured by said set screws to the head. If desired, the knives instead of being concaved on their cutting faces, may be made flat, but in such case, the beds for such knives in the openings in each half of the head must also present a flat surface, and the machine with such shaped cutters will work as effectually as with any other. However, for reasons hereafter stated, the curved knife is much more desirable and is the one I prefer. The number and mode of adjustment of the cutter-knives used may be varied as the size of the head or the character of the wood to be shaped may render expedient. I have found that, for general purposes, six knives, three on each half of the head, the knives thereof on one side alternating in their appearance on the conclave with those on the other, is a very satisfactory and efficient arrangement.

The bent handle is held by the operator on the rest block and guided by him into the groove in the head, which revolving rapidly, say two thousand revolutions per minute, by the action of its cutters, shapes the side of the handle exposed to the cutters the form of said groove; the handle is then turned over and guided into the groove in like manner, shaping the other side and completing the rounding of the handle. With some classes of work, it is desired to round the handles on one side and oval them on the other or otherwise vary the shape of the different sides, in which case several heads are employed with grooves and knives of the shape to give to the various sides of the handle the shape required. Thus if a handle is desired oval on top and round underneath the top of the bent

wood is run through a machine with about the shape of groove shown in the drawing to form the oval and then turned over and run through a semi-circular grooved head to form the rounded surface on the under side.

The knives are adjusted to the disks of the cutter-head upon sharply inclined beds formed in one end of the openings in the disk, thus presenting the cutting edges of the knives diagonally to the plane of the curved portions of the disk as shown in figure III, similar to the manner in which plane bits are secured to the plane frame, the incline on the other side forming a channel for the discharge of the chips made by the cutters, and are adjustable back and forth within the disks by set screws working in slots in the knives. By this longitudinal adjustment the depth of the cutting action of the knives may be regulated; the openings where the cutters enter the curve on the disks being narrow the metal surrounding such openings resists the progress of the cutters beyond the distance to which the cutters extend beyond the curve and by increasing or diminishing this distance the cut may be made deeper or shallower, and the character of the work done varied. When the knives are projected to a considerable distance into the curve the chips are larger and the work consequently not so smooth as when the distance which they extend beyond the curve is made shorter, and when they are but slightly projected the chips are very fine and the work very smooth and nice. These adjustments may be made to suit the character of wood being shaped or the character of work required, but with proper care with all qualities of wood the arrangement of the knives may be made so that the handles shaped will be sufficiently smooth to go directly to the paint shop without further smoothing or finishing.

The knife which I prefer is that shown in Fig. IV, it is constructed of a thin plate of steel beveled like a chisel blade on its cutting end, curved to such an extent that when the blade is inclined with the beveled edge on a flat surface the bevel will touch the flat surface at every point in its plane. The advantage of this feature is that the blades when dull may be sharpened on

a flat stone, whereas if flat knives like that shown in Fig. V are used, a rounded stone the shape of the curve on the knife must be used.

A roller acting by a yielding pressure may be hung above the top of the cutter-head where the work to be shaped is of considerable length, to hold the wood down to the action of the cutters and form an additional guide therefor, but in the shaping of handles I have not found such a roller necessary.

I claim

I. A machine for rounding wooden handles and other wood-work consisting of a cylindrical cutter-head, mounted on a frame and revolting by suitable gearing, having in the center of its periphery a groove the shape and size of the oval or round on the dressed work, with one or more cutter-knives adjusted from each side of the cutter-head, through openings therein, into the groove.

Erase
r. 1/84.

II. A machine for rounding wooden handles and other wood-work consisting of a mounted cylindrical cutter-head rotating by suitable gearing, having in the center of its periphery a groove to correspond with the round on the dressed work, with one or more knives secured from each side of the cutter-head, through openings therein, and adjusted longitudinally into and from the groove in the head by slots in the knives and set screws.

4/

1. A cutter-head consisting of a cylinder with a groove in the center of its periphery and recesses from either side terminating in narrow openings on such groove, for the adjustment of the cutter-knives.

2. A cutter-head constructed of two cylindrical disks each, with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together, the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work.

Defendant's Exhib

with one or more recesses extending from the outer face of each disk, diminishing in width as they progress, and terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with knives secured in the openings.

3. A cutter-head constructed of two cylindrical disks each, with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together, the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disk, diminishing in width as they progress terminating in a narrow opening in the curve forming beds for the cutters, and spouts for the discharge of chips, with slotted knives secured in the openings and adjustable longitudinally therein by set screws.

4. The combination of the frame, the cutter-head with groove in its periphery, and one or more openings from each side terminating in a narrow slit on the groove, the knives secured in the openings and gearing, by which the head is actuated.

Erase April 12, 1884.

5. The combination of the frame, the cutter-head with groove in its periphery, and one or more openings from each side terminating in a narrow slit on the groove, the slotted knives secured in the openings and adjustable longitudinally therein by set screws and gearing by which the head is actuated.

5. The combination of the frame, the cutter-head with groove in its periphery, and one or more openings from each side, terminating in a narrow slit on the groove, one or more knives so curved that the bevel on their cutting ends presents a flat surface, and gearing by which the head is actuated.

Witnesses: AMOS K. CAVERLY.
GEO. L. MCMASTER.
H. D. BLAKEMORE.

STATE OF ILLINOIS, }
COUNTY OF ROCK ISLAND. } ss.

409 Amos K. Caverly, the above-named petitioner, citizen of United States, and resident of Moline, in the County of Rock Island, and State of Illinois, being duly sworn, deposes and says that he verily believes himself to be the original, first and sole inventor of the improvement in machines for rounding bent handles, described and claimed in the foregoing specification; that the same has not been patented to himself, or to others with his knowledge or consent; that the same has not, to his knowledge, been in public use or on sale in the United States for more than two years prior to this application, and he does not know and does not believe that the same was ever known or used prior to his invention thereof.

AMOS K. CAVERLY.

Sworn to and subscribed before me this 12th day of Nov., A. D. 1883.

C. I. HEMENWAY,
Notary Public.

[L. S.]

[Endorsed]:

112,557 869 / 101

U. S. Patent Office,
Nov. 23, 1883.

410 Jany. 11, '84. Room No. 85.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.

WASHINGTON, D. C., Jan. 9. 1884.

Amos K. Caverly,
Care Herbert D. Blakemore,
Rock Island, Ill.

Molding Machines, filed Nov. 23, 1883. Serial No. 112,557.

The claims are met by Patent No. 178,067, to J. Lennerton, May 30, 1876, No. 38 085, to A. A. Wilder, March 31, 1863, "Molding Lateral Feed." And No. 68.048, to M. F. Connett, Aug. 27, 1867, "Cutter-Heads." And No. 14.136, to J. W. Killam, Jan. 22, 1856, "Molding Straight Feed."

M. SEATON,
Examiner.

SPRAGUE,
4 Asst. Ex.

Defendan
Ex

[Endorsed]:

1 112,557 869

101

A. K. Caverly.
Rejection
Jany. 9, 1884.

In the matter of application of Amos K. Caverly for letters patent for Imp't in Machines for Rounding Bent Handles. Filed November 23, 1883. No. 112,557.

411

Hon. Commissioner of Patents:

SIR:—

In the above case no advice has been received by me since Nov. 23, 1883. If any report has been made on the merits of the application it must have miscarried. If the examiner has taken any action in the matter will you please advise me thereof, and if no action has been taken, I would request that the case be examined as early as may be.

Respectfully,

HERBERT D. BLAKEMORE,
Attorney.

Rock Island, Ill., Jany. 7, 1884.

[Endorsed]:

U. S. PATENT OFFICE. 112,557

869

101

A. K. CAVERLY.

Case received action Jan. 9, 1884, so this letter requires no answer.

M. SEATON,
Ex.

Jan. 12/84.

Defendant's Exhibits.

In the matter of the application of Amos K. Caverly for
412 letters patent for Improvement in Molding Machines. Filed Nov. 23, 1883, No. 112,557.

Hon. Commissioner of Patents.

SIR:—

I *amend* this case by *erasing the first and second* claims. The remaining claims contain the essential features of my invention and are not met by the references cited by the examiner. The features of my invention are. First: A *solid closed* cutter-head with groove in periphery the shape of the round desired on the finished work. Second: Openings from either side of the head for the reception of the knives, terminating in *narrow slits* on said groove, the purpose of the slits being to limit the penetration of the knives, prevent them from slivering or mangling the wood, and thus turn out fine and smooth work, while the increased size of said openings on the outer side of the head is to permit the shavings or chips made by the knives to be readily shed therefrom. Third: In said openings being constructed to form a bed for the curved knives, and Fourth: A curved cutter in combination with the foregoing elements.

None of the references cited by the examiner have a solid closed head, each have in a greater or less degree an open head, and in neither is there any suggestion of the curved knife, which is one of the important features of my machine. Besides this general objection to all the references most of them are, in addition distinguished from the present case.

Wilder 38,085 cannot be used for the purpose of molding without a radical change of knives, even with its present construction of head, such change would render the machine effective for
413 this purpose.

Connett 68,048, is entirely different from the invention in this case. The head is entirely open, and while this disadvantage is sought to be overcome by compelling the material molded to serve as a gauge and itself limit the penetration of the cutters, it will not prevent slivering and mangling the wood where the knives do cut, and cannot be made practically operative without the use of a finishing process or machine not only to smooth the work done on it but to take off this central ridge or gauge which is left on the center of

Defendant's Exhibit

the work by the peculiar shape of the knives used. Killam 14,-136, besides being open to the objection urged against the other references, is not operative except by the use of a double set of heads and the mechanism is totally different from mine.

Respectfully,

HERBERT D. BLAKEMORE.

Rock Island, Ill., March 28, 1884.

[Endorsed]:

2

112,557 869

101

A. K. CAVERLY,
Amendment,
Apl. 1/84.

U. S. PATENT
OFFICE.
Apr. 1, 1884.

414 Room No. 85, Apr. 4, 84.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

WASHINGTON, D. C., April 3, 1884.

Amos K. Caverly,
Care Herbert D. Blakemore,
Rock Island, Ill.

Molding Machines, Filed Nov. 23, 1883, No. 112,557.

The first, second, third & sixth claims are allowed.

The fourth & fifth claims contain no elements or combination which have not been embraced in the preceding claims. The gearing by which a cutter-head is driven is always understood.

M. SEATON,
Examiner.

SPRAGUE,
4 Ass't Ex.

[Endorsed]:

3 112,557

869

101

A. K. CAVERLY,
Rejection.
April 3, 1884.

In the matter of the application of Amos K. Caverly for letters patent for Improvement in Machine for Rounding Bent Handles. Filed Nov. 23, 1883. No. 112,557.

Hon. Commissioner of Patents.

SIR:—

I *erase* the *present fourth and fifth, original sixth and seventh claims.*

The title given this invention by the examiner, that of "Improvement in Molding Machines." I would like to have changed to that mentioned in the above caption, and that which the inventor in his application has designated it. The primary object of this machine is to shape or round plow handles and other bent work, and I would prefer to have the name of the machine indicate this object.

I presume that the case is now ready for issue.

Respectfully,

HERBERT D. BLAKEMORE.

Rock Island, Ill., April 9, 1884.

[Endorsed]:

4 112,557 869

101

A. K. CAVERLY,
Amendment.
April 12, 1884.

U. S. PATENT OFFICE.
April 12, 1884.

416 $20 D.

ROCK ISLAND, ILL., July 14th, 1884. Defendant's Exhi

In the matter of the application of Amos K. Caverly for letters patent for Imp't in Machines for Rounding Bent Handles. No. 112,557. Filed Nov. 23, 1883. Allowed April 18, 1884.

Hon. Commissioner of Patents.

SIR:—

Enclosed I hand you Chicago draft to pay final fee in above case.

Yours Respectfully,

HERBERT D. BLAKEMORE.

[Endorsed]:

U. S. PATENT OFFICE
July 17, 1884.
By Mail.

Serial number 112,558.

417 DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

WASHINGTON, D. C. April 18, 1884.

Amos K. Caverly, Assor.,
Care Herbert D. Blakemore,
Rock Island, Ill.

SIR:—Your application for a patent for an Improvement in Machines for Rounding Bent Handles, filed Nov. 23, 1883, has been examined and allowed.

The final fee, twenty dollars, must be paid, and the letters patent bear date as of a day not later than six months from the time of this present notice of allowance.

If the final fee is not paid within that period, the patent will be withheld, and your only relief will be by a renewal of the application, with additional fees, under the provisions of Section 4897, Revised Statutes. The office aims to deliver patents upon the day of their date, and on which their term begins to run; but

Defendant's Exhibits.

to do this properly applicants will be expected to pay their final fees at least twenty days prior to the conclusion of the six months allowed them by law. The printing, photolithographing, and engrossing of the several patent parts, preparatory to final signing and sealing, will consume the intervening time, and such work will not be done until after payment of the necessary fees.

When you send the final fee you will also send, distinctly and plainly written, the name of the inventor and title of invention as above given, date of allowance, (which is the date of this circular,) date of filing, and, if assigned, the names of the assignees.

If you desire to have the patent issue to assignees, an assignment containing a request to that effect, together with the fee for recording the same, must be filed in this office on or before the date of payment of final fee.

418 Additional copies of specifications and drawings will be charged for at the following rates: Single copies, uncertified, 25 cents: Twenty copies or more, 10 cents each. The money should accompany the order.

Very Respectfully,

BENJ. BUTTERWORTH,
Commissioner of Patents.

The within title is that given by the Examiner in charge, as most appropriate to your invention. Should you desire a change in the same, satisfactory reasons must be given therefore on or before the payment of the final fee.

In remitting the final fee give the serial number at the head of this notice.

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IN THE

SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1895.

Exparte HERSCHEL CAVERLY,

ADMINISTRATOR, ETC., *Petitioner.*

Petition for writ of tertiorari, requiring the United States Circuit Court of Appeals, for the Seventh Judicial Circuit, to certify to the Supreme Court, for review and determination, the case of Herschel Caverly, Administrator of the Estate of Sarah Caverly, deceased, Appellant, vs. Deere & Company, Appellee.

To the Honorable, the Supreme Court of the United States:

The petition of Herschel Caverly, Administrator of the Estate of the said Sarah Caverly, deceased, respectfully shows to this Honorable Court as follows:

I.

That heretofore, to-wit: On the ninth day of August, 1890, said Herschel Caverly, Administrator of the Estate of Sarah Caverly, deceased, filed a bill in equity in the Circuit Court of the United States for the Northern District of Illinois—Southern Division—against Deere & Company, a corporation created under the laws of Illinois, wherein and whereby said Complainant alleged and charged that the said Deere & Company had infringed upon those certain Letters Patent of the United States, No. 303,116, granted upon the application of Amos K. Caverly as inventor, and issued to Sarah Caverly, as assignee thereof, on the fifth day of August, 1884: that, in and by said bill, your petitioner also prayed that an injunction should be issued in said suit against Deere &

Company — enjoining and restraining it from further infringing upon said Letters Patent — and that said Deere & Company should be compelled to account for and pay over to your petitioner the amount of damages which your petitioner has sustained, and the gains, profits, advantages and income which said Deere & Company had realized from infringing upon said Letters Patent: and for such other and further relief in the premises as was in accordance with equity and good conscience.

II.

That thereafter, to-wit: On the second day of October, 1890, said Deere & Company duly appeared in said suit by his Counsel, and filed its answer: wherein and whereby said Deere & Company alleged and set up the following defenses:

First — Defendant denied infringement.

Second — Defendant avers that, in view of the art at the time of making application for said Letters Patent, No. 303,116, for said supposed invention, it did not require invention, but only ordinary mechanical skill to construct a machine for rounding bent handles like that shown and described in said Letters Patent.

Third — Defendant denies that said Amos K. Caverly was the true, original, and first inventor of the matters and things shown, described, and claimed in said Letters Patent, No. 303,116: and it avers that long prior to said supposed invention by said Amos K. Caverly, the same matters and things, or some material part or parts thereof, were shown and described in Letters Patent of the United States as follows:

No. 24,131 — Granted and dated May 24, 1859, to George W. Matthews, for Wood Moulding Machine.

No. 114,170 — Granted and dated April 25, 1871, to Elbridge G. Matthews, for improvement in Machines for Forming Plow Handles.

No. 118,931 — Granted and dated September 12, 1871, to Eminel P. Halstead, for improvement in Cutter-heads for Wood Working Machines.

No. 140,355 — Granted and dated July 1, 1873, to Arthur B. Farquhar, for improvement in Machinery for Making Plow Handles.

Fourth — Defendant avers that said supposed invention had been in use in this country for more than two years prior to the making of application by said Amos K. Caverly for said patent, and that the same matters and things, or some material part or parts thereof, were known to and used by the Grand De Tour Plow Com-

pany of Dixon, Illinois, and used by it at said Dixon in the State of Illinois.

Also, known and used by B. F. Avery & Sons of Louisville, in the State of Kentucky, and used by it at Louisville, Kentucky.

Also, known and used by Herman Fletcher, residing at Louisville, Kentucky, and used by him at said Louisville, Kentucky.

Also, known and used by the Louisville Agricultural Works of Louisville, in the State of Kentucky, and used by it at said Louisville, Kentucky.

Also, known and used by John Mory, now residing at Moline, in the State of Illinois, and used by him at Dixon, Illinois.

Petitioner further states that the foregoing constitute all the defenses set up, or alleged by said Deere & Company, in its answer to said bill in equity.

That afterward, to-wit: On the twentieth day of October, 1890, complainant filed his replication in said suit, whereby issue was joined: that upon such issues the testimony of witnesses were taken by deposition upon oral interrogatories: and documentary evidence was produced: as, also, mechanical devices and material exhibits were produced in evidence.

That afterward, to-wit: On the eighteenth day of October, 1892, said cause was submitted to the Court upon argument: the Honorable Henry W. Blodgett, presiding judge.

That afterward, to-wit: On the thirtieth day of October, 1892, the Court rendered and entered of record a decree dismissing complainant's said bill for the want of equity.

That afterward, to-wit: On the twenty-first day of January, 1893, said complainant filed his petition in said suit, praying that an appeal may be allowed to the United States Circuit Court of Appeals in the Seventh Judicial Circuit: and that a duly certified transcript of the record and of the proceedings had in said suit, including all the evidence, and mechanical devices, and material exhibits, introduced in evidence therein, be transmitted to said United States Circuit Court of Appeals.

That afterward, to-wit: On the twenty-fifth day of January, 1893, said complainant filed his Assignment of Errors in said cause: which Assignment of Errors is set forth in the certified copy of record, accompanying this petition, on pages 22 to 31 thereof, to which reference is here made.

That afterward, to-wit: On the fifteenth day of March, 1893, an order of Court allowing an appeal of said suit to the United

States Circuit Court of Appeals was made and entered of record, as prayed for: and further ordering that a duly certified transcript of the record and of the proceedings had in said suit, including all the evidence and mechanical devices and material exhibits, introduced as evidence therein, be transmitted to said United States Circuit Court of Appeals: an appeal bond, as required by law, was then and there filed and approved by the Court: and the proper citation was duly issued.

That afterward, to-wit: On the ninth day of October, 1894, said cause was duly submitted to the United States Circuit Court of Appeals, upon printed and oral argument, and upon the record, evidence, mechanical devices, and material exhibits certified and transmitted from the Court below.

That afterward, to-wit: On the twenty-third day of February, 1895, the Court filed its opinion, and rendered and entered of record a decree affirming the decree of the Court below.

That afterward, to-wit: On the twentieth day of March, 1895, complainant filed his petition for re-hearing in said cause, in accordance with the rules of Court: to which defendant filed answer: that said petition was, on the second day of May, 1895, overruled by the order of Court.

III.

The decision of the Court below, as complainant understands it, is based, primarily, upon its particular construction of the descriptive specification of said Letters Patent, including the claims, and perspective drawings, as the same appears upon their face.

In order, therefore, to clearly present to this Court for its consideration the several questions hereinafter set forth, it is essential, first, to refer in detail to the more material portions of such descriptive specification and perspective drawings.

The particular art to which said Letters Patent relate is that of a rotary cylindrical planing body, possessing a curved peripheral groove, having planing-knives adjusted thereto in some manner or mode: these constitute the general names or appellation of the primary and general elementary parts common to the prior art: but the detailed organic plan of constructing a cylindrical body: and a curved peripheral groove: and of planing-knives: and of constructing the particular constituent parts constituting the mechanism for the adjustment of the planing-knives to the curved surface of the groove: and the ultimate combination of all the constituent parts, may materially and substantially differ, and produce materially and substantially different results.

The fact that two or more mechanical devices belonging substantially to the same art embody primary and general elementary parts, which may be denoted by the same general name or appellation without any reference to the particular detailed construction and combination of such parts, cannot constitute any material evidence of their material and substantial identity.

All curved peripheral grooves belonging to the general art are, as an inevitable geometrical property thereof, bounded by a complex curved surface, wherein the lines of the vertical curvature cross the lines of the longitudinal curvature at right angles: and wherein the longitudinal curvature is the greatest at the central portions of the groove and become diminished or flattened, as to curval quantity, along the ascending line of the vertical curvature: such diminution of curvature or curval quantity being in the *inverse ratio* of the increase of the distance extending from the centre of the groove along the ascending line of the vertical curvature.

It is this complex and diversified feature of the curved peripheral groove that renders the adjustment of planing-knives thereto extremely difficult.

There is no contention on the part of the defendant that any operative work was done by any device prior to the invention embodied in said Letters Patent, that did not require to be finished and smoothed by the application of the drawing-knife and wood-file, or by some such instruments, before being completed for use.

Whereas, the operative work done by said invention is described in the descriptive specification as being such that "with proper care, with all qualities of wood * * the handles shaped will be sufficiently smooth to go directly to the paint-shop without further smoothing or finishing." (Lines 63–68, page 2.)

The evidence shows that said invention, in fact, accomplishes its work as thus described.

The fact that such prior devices accomplished their work thus imperfectly, as well as unprofitably, as shown by the evidence, constitutes sufficient evidence that there existed extreme difficulty in devising a structural organism by means of which the planing-knives could be so adjusted to such a complex and varied curved surface, as is presented by the curved peripheral groove, and to the material to be dressed, as to produce such superior excellence in planing work.

It is certain that no person, at any time prior to said invention, in fact constructed any such organism thus producing such superior results and effects; and if such organic structure would readily and without the exercise of any studied contrivance be at once suggested

to any competent mechanic, it is remarkable that, in the process of constructing devices according to the organic plan known to the prior art, it did not occur to any competent mechanic, or other person, for a number of years, nor prior to said invention, to construct the same.

The structural organism of the invention is, in fact, mechanically and geometrically different from the organic plan of the devices known to the prior art, with respect to which fact there has been no contrary contention: nor is there any contrary contention, as to the fact, that the invention produces results and effect of superior excellence, and capable of performing its operative work as described in the descriptive specification.

Moreover, the concurrent expert testimony of six master mechanics shows that the mechanical construction of the invention is materially and substantially different from that of the several devices produced in evidence by the defendant:—and that it required the exercise of the inventive faculties to construct the same, in view of the prior art: such testimony being undisputed.

It is shown by expert testimony, and with respect to which there has been no contrary contention, that it is an established principle or fact in practical mechanics, that it is essential, in order to produce the most perfect planing results and effect, that the cutting-edges of the knives should be presented to the material to be dressed upon a uniform diagonal pitch or angularity substantially of 45 degrees, and upon a line running directly transversely to the axis and grain of the material to be dressed, together with an accompanying avenue for the easy escape of the chips:—and that any substantial change or variation from 45 degrees of such pitch or angularity, by either increasing or diminishing the quantity of the same, impairs the operative work of the knives and produces inferior results in proportion to the extent of such change or variation.

Record, pages 100–101, Ints. 10 to 19 inclusive, and answers: Record, page 121, Int. 123, and answer.

The invention in said Letters Patent embodies all these several features, thus recognized and established in practical mechanics as being essential prerequisites to the production of the best results and effect: as is hereinafter shown in the description of the invention upon the face of the specification, and as shown by the evidence.

The problem to be solved by the inventor was the discovery of a structural organism whereby it would be possible and easily practicable to present the cutting-edges of the knives to the complex

and varied curved surface of the peripheral groove, and to the material to be dressed, so as to embody these essential features and principles thus established in practical mechanics.

No one of the devices known to the prior art was, under the organic plan of their construction, in fact, susceptible of being made to embody such essential planing features: hence, such devices were practical failures by reason of the imperfection of their operative work: all of which is shown by a detailed geometrical description of such devices hereinafter set forth.

The invention in the Caverly Letters Patent is stated to be a new and useful improvement in Machines for Rounding Bent Handles, and other wood-work.

The following constitutes an *abstract* of *portions* of the descriptive recitals of the specification, including the claims, of such Letters Patent:

(Lines 19–50, page 1 of specification):

"My invention relates to machines for such round or oval or bent wood handles, and other wood-work: and it consists in a cylindrical cutter-head mounted on an ordinary frame, and revolving vertically— * * constructed, preferably, of two cylinders or disks, bolted together, having in the center of its periphery a groove the shape and size of the curve or oval on the dressed handle, and the cutter-knives adjusted from both sides of the cutter-head into the groove: *and in the various combinations and details of construction hereinafter described and claimed.*"

"For convenience I will illustrate and describe my invention with reference to the rounding of bent handles—such, for instance, as are used on plows and cultivators—although it is effective with many classes of wood-work where a rounded or ovaled edge is desired."

"In the drawings, Figure I is a rear elevation of a machine embodying my invention, and showing the particular construction of the cutter-head, and its mounting on the frame-work."

"Figure II is a *side view* of the cutter-head, showing the mode of *adjustment* of the cutters thereto."

"Figure III is an edge view of one-half of a cutter-head, with parts cut away at XX in Figure II, to show the adjustment of the knives."

"Figure IV and V are detail views of the cutter-knives." * *

"The cutter-head, B, is of cylindrical form * * constructed, preferably, of two cylindrical pieces or disks, each having such a curved or concaved cut, b^2, on its inner face, extending from beyond its diameter to its periphery, that when they are placed together

the curves or concaves in the disks will form a groove in the head the size and shape of the dressed handle."

"When the cutter-head is constructed in two pieces the latter are securely fastened together by bolts passing through bolt holes, b^4, in each, and nuts, b^5, or otherwise prevented from having independent motion."

"Each of the disks forming the cutter-head has one or more openings or ditches, flaring at the top on the outer face thereof, decreasing in width in their inner progress, and terminating at the bottom in *narrow crescent-shaped opening*, b^2, in the curve on the inner face of the disk, the metal being concaved and sharply inclined at one end of the recess, as at b^2 to permit the ready shedding of the chips from the cutter, and convexed and inclined in like manner at the opposite end to form beds for the concaved knives."

(Lines 96–102, page 1):

"If *desired*, the knives, instead of being concaved on their cutting faces, may be *made flat*."

"But in such case the beds for such knives in the openings in each half of the head must also present a *flat* face, and the machine with such shaped cutters will work as effectively as with any other."

(Lines 31–53, page 2):

"The knives are adjusted to the disks of the cutter-head upon *sharply inclined beds* formed in one end of the openings in the disk, thus presenting the *cutting-edges* of the knives diagonally to the *plane* of the curved portions of the disks, as shown in Figure III, *similar to the manner in which plane-bits are secured to the plane-frame*—the incline on the other side forming a *channel* for the discharge of the chips made by the cutters—and are adjustable back and forth by set-screws working in the slots in the knives."

"By this longitudinal adjustment the depth of the cutting action of the knives may be regulated."

"The *openings*, where the cutters enter the curve on the disk, being narrow, the metal surrounding such openings resists the progress of the cutters beyond the distance to which the cutters extend beyond the curve, and by increasing or diminishing this distance the cut may be made deeper or shallower, and the character of the work done varied."

(Lines 60–68, page 2):

"These adjustments may be made to suit the character of the wood being shaped, or the character of the work required: but with proper care with all qualities of wood the arrangement of the knives may be made so that the handles shaped will be sufficiently smooth to go directly to the paint-shop without further smoothing or finishing."

THE CLAIMS.

"I claim:"

"1. A cutter-head consisting of a cylinder with a groove in the center of the periphery and recesses from either side, terminating in narrow openings on such groove, for the adjustment of the cutter-knives."

"2. A cutter-head constructed of two cylindrical disks, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disk, diminishing in width as they progress, and terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of the chips, with knives secured in the openings."

"3. A cutter-head constructed of two cylindrical disks, each with such a concave on its inner face, extending from beyond the diameter to the periphery, that when secured with their curved faces together the concaves form a groove on the periphery of the head corresponding to the shape and size of the dressed work, with one or more recesses extending from the outer face of each disk, diminishing in width as they progress, terminating in a narrow opening in the curve, forming beds for the cutters and spouts for the discharge of chips, with slotted knives secured in the openings and adjustable longitudinally therein by set-screws."

"4. The combination of the frame, the cutter-head with groove in its periphery and one or more openings from each side, terminating in a narrow slit on the groove, one or more knives so curved that the bevel on their cutting ends present a flat surface, and gearing by which the head is actuated."

The following is an *analytical description* of the structural constituent parts of the invention and their combination and mode of operation according to the descriptive recitals of the specification, and the perspective description of the drawings referred to in such recitals as exhibiting the mode and manner in which the same are constructed:

First—As to the CORPUS of the *cutter-head:*

It is composed, preferably, of two cylindrical disks secured together, having their sides constituting circular planes bounded by the peripheral circle *as shown in* Figure II.

Second—As to the *peripheral groove:*

It is a deep vertically curved cut made upon the peripheral

rim of the inner side-planes of the disks of a conic-section-like shape, and is deep and capacious, *as shown in* Figure I.

Third—As to the *flaring openings*:

(*a*) They are constructed *upon* and *in* the peripheral *rims* of the side planes of the disks near the peripheral circle, and on and along the diametrical and radial lines of the planes of the peripheral circle, *as shown in* Figure II.

(*b*) The openings are *flaring* at the surface of the external disk-planes, decreasing in width as they progress inwardly.

(*c*) The ends of the openings constitute inclined end-planes, which pass from the outer surface of the disk-planes on a right diagonal line to the plane of the curved surface of the groove and to its center.

(*d*) The lower terminal portions of such inclined end-planes constitute *narrow openings* or *channels* in the curve of the groove surrounded by metal—that portion of such channels at the *central* part of the groove being, of *necessity*, formed directly beneath the surface of such central part of the groove, *as shown* at b^2 in Figure I, also in Figures II and III.

(*e*) Such *narrow openings*, or *channels*, are the necessary mechanical *result* of producing such inclined end-planes in a right diagonal line to the *plane* of the curved surface of the groove, and which are described in the descriptive recitals of the specification: (lines 75–81, page 1; lines 45–53, page 2; *claim* 2, lines 100–104, and in *claim* 3, lines 114–118).

(*f*) Such *narrow openings*, or *channels*, in the curve of the groove are, in form, either crescent-like or rectangular-like shape to correspond with the use of either curved or of flat knives, as the case may be, *as shown* at b^2 in Figure II.

(*g*) The *transverse* lines of the *inclined* end-planes run substantially on and along and concurrently with the diametrical and radial lines of the peripheral circle, *as shown* at b^3 in Figures II and III.

(*h*) So, also, in like manner, do the longitudinal central lines of the *narrow openings*, or channels, run thus substantially on and along and concurrently with such diametrical and radial lines of the peripheral circle, *as shown* at b^2 in Figure II.

(*i*) So, also, do the lines of the *lower terminal end* of such *end-planes* thus substantially run on and concurrently with such diametrical and radial lines, *as shown* at b^2 and b^3 of Figure II.

(*j*) Also, such lines thus run at that line in the *vertical*

curved surface of the groove, where the longitudinal curvature of the groove descends, with equal degrees of declination in *opposite directions*, that is, descends equally both in *front* and in *rear* of the lower terminal end-lines of such end-planes, *as shown* at b^2 and b^3 in Figures II and III.

(*k*) So, also, such lines thus run where the longitudinal curvature of the groove is *neutralized* as a *factor* either in increasing or diminishing the diagonal pitch or angularity of the inclined end-planes, *as shown* at b^2 and b^3 in Figure II.

(*l*) Such *inclined* end-planes, by virtue of their *geometrical position* with respect to the plane of the peripheral circle, and to the diametrical radial lines thereof, are presented *longitudinally* in a diagonal line to the plane of the curved surface of the groove, and *transeversely* to the *axis* and *grain* of the material to be dressed, and with a uniform diagonal pitch or angularity, *as shown* at b^2 and b^3 in Figures I, II and III.

The foregoing analytical description of the openings upon the *peripheral rims* of the *disks* exhibit *that feature* of the invention which *shapes* and *controls* and *fixes* the *adjustment* and *position* and *relation* of the plane of the cutting-edges of the knives to the plane of the curved portions of the groove, "*as shown in* Figure III, similar to the manner in which plane-bits are secured to the plane-frame," as set forth in the descriptive recitals of the specification: (lines 31–68, page 2).

Fourth—As to the *knife-beds* and *cutter-kuives* adjusted thereon:

(*a*) The *inclined end-planes*, last above analytically described, constitute the *knife-beds*, and to which the cutter-knives are longitudinally secured, *as shown* in Figures II and III.

(*b*) The *planes* of the cutter-knives being thus adjusted to the *inclined end-planes*, such knife-planes and the cutting-edges thereof are, by *virtue* of their geometrical position and relation to the plane of the peripheral circle and of the diametrical and radial lines of such circle, presented upon a right diagonal line to the *plane* of the curved portion of the groove: and *transversely* to the axis and grain of the material to be dressed, *as shown* at b^2 and b^3 in Figures II and III.

(*c*) So, also, for the same reason, the *transverse* lines of such knife-planes run substantially on and along and concurrently with the diametrical and radial lines of the *plane* of the peripheral circle.

(*d*) So, also, the lines of the cutting-edges of the knives, in like manner, run substantially on and along such diametrical and radial lines.

(*e*) So, also, the lines of the cutting-edges of the knives, by reason of their *geometrical position* with respect to the *plane* of the curved surface of the groove, run substantially *concurrently* with and rest upon the line of the vertical curved surface of the groove, at *that point* where the *longitudinal* curvature of the groove descends, with equal degrees of declination, in *opposite directions.*

(*f*) As, also, such cutting-edge lines of the knives thus occupy a position upon the curved surface of the groove where the longitudinal curvature of the groove is *neutralized*, as a *factor* in either increasing or diminishing the diagonal pitch or angularity of the cutting-edges of the knives to the plane of the curved surface of the groove, and to the material to be dressed, *as shown* at b^2 and b^3 in Figures II and III.

(*g*) Also, the cutting-edges of the knives, by reason of their *geometrical position* with respect to the curved surface of the groove, run *transversely* to the *axis* and grain of the material.

(*h*) The cutting-edges of the knives *rest* in the *narrow openings* in the curved surface of the groove *surrounded* by *metal;* such narrow opening at the *central* curved portion of the groove constituting *channels* directly beneath the curved surface thereof, in which the *inner points* of the knives rest, *as shown in* b^2 in Figures I and II and III.

(*i*) The cutting-edges of the knives, by reason of the *geometrical* position of the knife-planes, with respect to the *plane* of the curved surface of the groove, are presented to the plane of such curved surface and to the material to be dressed, at an *uniform* diagonal pitch or angularity.

(*j*) The *quantity* of the vertical diagonal pitch or angularity of the knives to the plane of the curved portion of the groove, which produces the described effect, and which the inventor deemed productive of the most perfect results, is *fixed* and rendered *certain*, full, clear, and precise, by the descriptive recitals of the specification by means of a specifically stated reference to the drawings, in the words, "*as shown in* Figure III, *similar to the manner in which plane-bits are secured to the plane-frame:*"—the drawing exhibited in Figure III constituting a perspective descriptive pattern of the particular quantity of the vertical diagonal pitch or angularity which was deemed by the inventor as productive of the *best* planing results.

(*k*) The perspective descriptive pattern exhibited in Figure III is, in fact, that of 45 degrees, as shown by the evidence (Record, page 100, Ints. 10–11, and answers). So, also, is the diagonal pitch or angularity of plane-bits in the plane-frame, or carpenter's plane, as is also shown by the evidence.

Fifth—As to the *channels* for the *discharge* of the *chips* and *shavings*:

(*a*) The *opposite* inclined *end-planes* in the openings and recesses form channels for the discharge of the chips and shavings.

(*b*) Such channels pass *over* the upper longitudinal plane of the cutter-knives, and constitute natural and easy passages for the escape of the chips and shavings.

A brief geometrical description of the combination of the constituent parts of the invention, and of their mode of operation, is as follows:

The openings or recesses are so constructed upon and in the peripheral rim, and the inclined knife-bed planes in one end thereof, and the plane of the knives secured thereon, are so presented to the plane of the curved surface of the groove that the cutting-edges of the knives *rest* at that point in such curvature, where the diametrical and radial lines of the peripheral circle meet at *right angles* the tangent line of such circle passing through the same point: thereby causing the cutting-edges of the knives to rest in such tangent line: or, in other words, to rest in the *tangent plane:* that is, in a plane being tangent to the plane of the curved surface of the groove: and, also, thereby causing the cutting-edges of the knives to occupy in the plane of the curved surface of the groove, and in its tangential plane, a *neutral* position with respect to the longitudinal curvature of the groove, wherein such longitudinal curvature, with its *diversified* features as to quantity of curval degrees on and along the line of the vertical curvature of the groove, is neutralized as a factor in either creating or forming or in increasing or diminishing the vertical diagonal pitch of the cutting-edges of the knives.

And, also, the inclined end-plane in the opposite end of such openings or recesses constitute channels for the escape of the chips and shavings.

The final result of such a geometrical combination of mechanical constituent parts or of constituent forces is to inevitably cause the cutting-edges of the knives to perform their planing work in and upon a plane being tangent to the plane of the curved surface of the groove, "similar to the manner in which plane-bits are secured to the plane-frame:" and to produce the same operative results as is produced by the plane-bits in the carpenter's plane when applied to *straight* planing surfaces.

The particular relation in which the cutting-edges of the knives in the carpenter's plane sustain to the planing surface of the plane-

frame and to the parallel plane surface of the material to be dressed, is established in practical mechanics as the standard of excellence in planing work.

(Record, page 100, Ints. 10–19 and answers.)

The evidence shows, without any contrary contention, that the plane-bits, secured to the plane-frame, present the cutting-edges thereof to the planing surface of such plane-frame and to the material to be dressed, upon a uniform pitch or angularity of 45 degrees.

Such a geometrical combination of constituent parts or of constituent mechanical forces is in perfect harmony with the descriptive specification, a portion whereof is as follows:

"The knives are adjusted to the disks of the cutter-head upon sharply-inclined beds in one end of the openings in the disks, thus presenting the cutting-edges of the knives diagonally to the plane of the curved portions of the disks, *as shown in* Figure III, *similar* to the manner in which plane-bits are secured to the plane-frame—the incline on the other side forming channels for the discharge of the chips, * * and are adjustable back and forth by set-screws working in the slots of the knives."

"By this adjustment the depth of the cutting-edges of the knives may be adjusted."

The reference, "as shown in Figure III, similar to the manner in which plane-bits are secured to the plane-frame," when taken in connection with the other portions of descriptive specification relating to Figures I, II and III, constitutes a full, clear, concise and exact description of the particular uniform diagonal pitch or angularity, which the inventor deemed productive of the *particular* results and effect described in the specification, and productive of the most perfect operative work.

Figure III is referred to, in the descriptive specification, as a *perspective* diagram or pattern, showing perspectively the particular quantity of the diagonal pitch or angularity in which the cutting-edges of the knives were to be presented to the curved portions of the disks, and which would produce the particular operative results described, and which the inventor deemed productive of the most perfect planing-work.

Such perspective diagram shows perspectively a uniform diagonal pitch or angularity, which, in quantity, is, according to expert testimony, in fact, 45 degrees.

Such a perspective diagram or pattern constitutes a convenient and perfectly reliable pattern for the use of any mechanic, in the

process of constructing the inventions just as the architect uses his convenient patterns, in the process of procuring angular and triangular forms, and the particular quantity of the same for the construction of mechanical structures: and when it is desirable to ascertain the particular quantity of any diagonal pitch or angularity, expressed in numerical degrees, the same is speedily procured by applying to the pattern the carpenter's quadrant of degrees.

A perspective pattern of any particular form, dimension, or juxtaposition or angularity of constituent parts in combination, of the invention under consideration, or of any invention in mechanism, necessarily furnishes a description possessing the elements of absolute certainty: a description which furnishes, with like certainty, the easy and convenient means of procuring the arithmetical mensuration of such parts.

Under such circumstances, the means of knowledge is equivalent to the knowledge itself.

This being true, the perspective diagram, thus being designated by the descriptive specification for that purpose, should be construed and held as showing the particular arithmetical quantity of diagonal pitch or angularity, which it perspectively exhibits and which is, in fact, according to the evidence, 45 degrees.

Any other holding would be clearly inharmonious with the spirit and beneficent purposes of the Patent Act.

IV.

The defendant, Deere & Company, produced in evidence three several devices, namely: the Grand De Tour machine, the Moline Plow Company machine, and Louisville Head, all of which were constructed substantially upon the same organic plan.

The following is a geometrical description of the Grand De Tour machine which also constitutes, in all substantial respects, a description of other named devices:

(1) The head consists of one piece of metal, cylindrical and disk-like in form, having circular side-planes bounded by the peripheral circle, and possessing a shallow peripheral groove of the vertical depth of a semi-circle.

(2) It contains lateral and longitudinal slot-shaped channels formed *beneath* the surface of the circular side-planes of its external sides.

Such slot channels commence in the periphery of the head at the corner of an arc of 60 degrees of a *quadrant* of the peripheral

circle: thence running on and along a perpendicular line beneath the surface of the external circular side-planes to and *bisecting* the line of the radius of the peripheral circle.

Such *channel lines*, geometrically described, constitute the *sine line* of the arc of 60 degrees of the peripheral circle.

Also, such channels are, in depth, equal to the length of a line extending from the surface of the external side-planes, and at right angles therewith to the center of the groove, and correspond substantially in length, width, and depth to the dimensions of the knives.

(3) The knives are adjusted laterally and longitudinally in such lateral and longitudinal channels, which constitute knife-beds, and which sustain the same identical *relation* to the longitudinal curvature of the groove, as that of a transverse section of the head and of the groove cut by passing a cutting-plane, at right angles, on and along the *sine line* of the arc of 60 degrees of the quadrant of the peripheral circle, and from one external side-plane to the other.

(4) The knife-bed channels and the knives adjusted therein, geometrically considered, remain on a constant perpendicular line extending to the longitudinal curvature of the groove, as contradistinguished from a diagonal line denoting angularity.

Such longitudinal curvature, by reason of the diversity of its curval quantity along the ascending line of the vertical curvature of the groove, forms with the cutting-edges of the knives a diversity of high degrees of angularity averaging 80 degrees, and causing such cutting-edges to meet the material to be dressed at the same degrees of angularity, and upon a cross-grain draw-cut of 65 degrees of lateral departure from the transverse line of the grain and axis of the material.

(5) In front of the knives, as adjusted to the groove, an aperture extends perpendicularly downwards, thence backwards into the central portion of the body of the head: but in no practical sense, in the nature of things, forming an avenue for the discharge of the chips, under such an organic structure, and as shown by the evidence.

Such is the geometrical description of the Grand De Tour machine.

Such description shows upon its face that there is not, in descriptive detail, any one geometrical nor mechanical descriptive line of any one constituent part, nor of any combination of constituent parts that is found in the descriptive specification and perspective description of the drawings in said Letters Patent.

The Grand De Tour machine possesses certain primary elementary general parts, known by general name or appellation, as a cylindrical body having a curved groove in its periphery and knives adjusted to such groove: these general *names* or *appellation* of primary elementary general parts constitute all that exists in common between said Grand De Tour machine and said invention relative to their respective geometrical mechanical structures.

Whatever identity there may be between the Grand De Tour machine and said invention, the same exists only in general *names* or *appellation* of some portion of their primary elementary general parts, without any reference to the detailed construction of their respective constituent parts.

Under the organic plan of the Grand De Tour machine, as that also of the other named devices, it is geometrically and mechanically impracticable to adjust the cutting-edges of the knives so as to meet the longitudinal curvature of the groove, and the material to be dressed upon any other than an average of 80 diverse degrees of angularity, and upon a cross-grain draw-cut of 65 degrees of lateral departure from the transverse line of the axis and grain of the material.

Such geometrical and mechanical impractibility arises from the fact that planing-knives adjusted upon the *sine line* of 60 degrees, or upon the *sine line* of any other degree or degrees either above or below 60 degrees of the arc of the quadrant of the peripheral circle, will, of geometrical and mechanical necessity, cut the diminished and flattened curval quantity of longitudinal curvature at an average of 80 diverse degrees of angularity, and upon a cross-grain draw-cut of 65 degrees of lateral departure, and, also, meet the material to be dressed upon the same high and lateral degrees.

These constitute planing operative features of the Grand De Tour machine and that of the other named devices.

The complex and varied character of the curved surface of the peripheral groove renders the organic plan of such devices incapable and insusceptible of embodying the essential planing principles as established in mechanics, and as comprehended in the carpenter's plane, and as are embodied in said invention.

This is a truth, not only shown by the concurrent testimony of several master mechanics, but it is susceptible of mathematical geometrical demonstrations, based upon the known geometrical properties of the complex curval quantity of the longitudinal curvature of such peripheral grooves.

By such geometrical computation the planing-knives, adjusted upon the organic plan of the Grand De Tour machine, or adjusted

upon and along the *sine line* of any degree or degrees either above or below 60 degrees of the quadrant of the peripheral circle, will inevitably cut the complex curval features of the longitudinal curvature at, substantially, an average of 80 diverse degrees of angularity, and a lateral angularity of 65 degrees, producing a cross-grain draw-cut of the knives to that extent, and, also, meet the material to be dressed upon the same angularity.

In other words, the planing-knives, under the Grand De Tour organic plan, inevitably possess an average vertical angularity of 80 degrees, and a lateral angularity of 65 degrees of departure from the transverse line of the axis and grain of the material, producing a cross-grain draw-cut of the knives to that extent.

It needs no argument to show that such an organic plan must constitute a practical failure in planing mechanism.

But the invention in said Letters Patent, by means of its particular structural organism, has substantially overcome the obstacles of the complex character of the curvature of the peripheral groove, and which produces operative results and effect of superior excellence.

V.

The following constitutes a portion of the opinion of the Court below:

"It is urged upon us that the patent in suit, when construed as it ought to be with reference to the drawings, shows the knives set at an angle of 45 degrees, and that in this respect the device is novel and useful as compared with the prior art. * * While it is argued from the drawings, and geometrically, that the angle of the knives in the patent is exactly 45 degrees, it is at the same time asserted and is clearly true that there is in the specification nothing showing that the inventor intended to limit the pitch of the knives to the precise number of degrees *indicated* by the *drawings*, but only to illustrate distinctly 'such angularity as was deemed productive of the most perfect results.' This implies, and if not admitted the fact would be evident that knives set at any angle, say between 40 and 50 degrees, and perhaps within a wider range, will work approximately as well as if set at the exact angle of 45 degrees. It follows that there is no patentability in that particular, even if it be conceded that the drawings of the patent are to be regarded as working plans showing the particular angle stated — a proposition which, in view of the fact that the specification is silent on the subject, is deemed untenable."

The decision of the Court, as above set forth, may be broadly and comprehensively stated to be as follows:

The description of the specification in said Letters Patent was made to contain *less* than the whole truth relative to the invention or discovery, and also made to contain more than is necessary to produce the described effect.

And when the same is expressed in full and extended statement, it is substantially, also, as follows:

It is held in the Court's decision, substantially, that the descriptive specification is made to contain *less* than the whole truth relative to the invention, by *omitting* to show the particular *arithmetical numbers* of degrees upon which the cutting-edges of the knives are presented to the plane of the curved portions of the groove, although the particular quantity of such pitch or angularity, which the inventor deemed productive of the most perfect results and effects, is indicated and shown, *in fact*, perspectively by the particular drawing designated by such specification for that purpose: and, also, while such drawing may constitute, *in fact*, a practical working pattern of the particular pitch or angularity thus perspectively indicated, yet the same fails to designate the particular *arithmetical* number of degrees of such pitch or angularity, and the specification is thereby made to contain *less* than the whole truth relative to the invention.

It is, also, held in such decision that the descriptive specification is made to contain *more than is necessary* to produce the *described effect:* such *effect*, as to operative excellence, being described to be, "that with proper care with all qualities of wood * * the handles shaped will be sufficiently smooth to go directly to the paint shop without further smoothing or finishing."

But it is held in such decision that the descriptive specification, in *addition* to the description of such operative excellence of which the invention is productive, when constructed according to such perspective practical pattern, relative to the particular pitch or angularity of the cutting-edges of the knives, and which the inventor deemed productive of the most perfect results,—is made to contain such recitals as imply, though not in terms, that the inventor did not intend to *limit* the invention to the particular pitch or angularity thus perspectively indicated and shown, and which is necessary in order to produce such described effect: and that such *additional* recitals, by thus denoting such *non-limitation*, have the effect of enlarging the operative scope of the invention *beyond* that which is necessary to produce the described effect so as to cover quantities of pitch or angularity by vertically increasing or by diminishing the same, which is *presumably* productive of proximate, though inferior, results and effect, and *presumably* inferior in proportion to the extent of such expanded operative scope: and that such unnec-

cessarily expanded operative scope impeaches the validity of the invention, so far as the same is included in such expanded scope, and that such result is produced by the non-limitation of the invention to the structural mechanism, as described in the specification, and the perspective drawings referred to and denoted in such specification.

It is thus seen that the Court's decision impeaches the validity of the invention:

First—Upon the ground that the descriptive specification *fails* to show the *arithmetical number* of degrees of the particular pitch or angularity of the knives indicated and shown, in fact, by the perspective and denoted drawing, and thereby containing *less* than the whole truth.

Second—Because such descriptive specification contains *additional* recitals impliedly denoting the non-limitation of the invention to the particular pitch or angularity so shown or indicated by such perspective drawing.

The decision, as based upon the *first*-mentioned grounds, is held by the Court sufficient to negative the validity of the invention.

The decision, as based upon the *secondly*-named grounds, *impliedly recognizes* the validity of the invention, so far as the descriptive specification and perspective drawings describe the structural mechanism of the invention, but negatives the validity of the same, so far as the expansion of the operative scope of the same is produced by the *non-limitation* of the invention to the particular structural mechanism described by the specification and perspective drawing, including the particular pitch or angularity perspectively indicated by such drawing, and, also, further negatives the validity of the invention when considered as a *unity*.

This construction of the descriptive specification, including the perspective drawings, brings the same directly within subject matter and meaning of section 4920 of the United States Revised Statutes relating to special matters of defense in actions for infringement, of which the following are recitals:

"Section 4920—In any action for infringement the defendant may plead the general issue, and having given notice in writing to the plaintiff or his attorney thirty days before may prove on trial one or more of the following defenses:

"*First*—That for the purpose of deceiving the public the description of the specification, filed in the Patent Office, was made to contain less than the whole truth relative to the invention or discovery, or more than is necessary to produce the described effect.

"The like defenses may be pleaded in any suit in equity for relief against infringement, and proofs of the same may be given upon like notice in the answer of the defendant and with like effect."

The foregoing statutory provisions expressly declare that defenses coming within the scope of the subject matter thereof shall, in suits in equity, be pleaded and set up in defendant's answer, together with such statutory notice, and that, in actions at law, notice in writing of such defense shall be given to the plaintiff or his attorney.

But the record in this suit affirmatively shows that no such defense was in any manner pleaded or set up in defendant's answer, nor any statutory notice therein given, nor by any other pleading.

Moreover, under the express provisions of said section 4920, herein set forth, it was necessary, in order to sustain the particular defense embodied in the Court's decision as above set forth, for the defendant to *allege* and *prove* that the description of the specification was made to contain less than the whole truth relative to the invention or discovery, or made to contain more than is necessary to produce the described result for the purpose of *deceiving* the *public:* and the *fact* of such *purpose* to deceive the public must be found by Court.

But there were no such allegations nor proof on the part of the defendant: the same were not in any manner suggested at the trial below.

So, in like manner, in order to render effective any defense, on the part of the defendant, relating to the insufficiency of the description of the specification, involving the question whether such specification describes the invention in such full, clear, concise and exact terms as to enable a person skilled in the art to make, construct, and use the invention, it is necessary to *allege* and *prove* that the such description was made for the purpose of *deceiving* the *public.*

The provisions of the *first* special defense set forth in said section 4920 embody within their meaning such defense relating to insufficiency of the descriptive specification, and the same is referable to part *First* of special matters of defense, which requires all defenses, comprehended within its meaning, to be alleged in proper pleadings: and proof made, in addition to the other facts constituting such defense, that the imperfect descriptive specification was so made for the purpose of deceiving the public.

But, as has been herein before stated, no such allegations, nor statutory notice, nor proof were made.

So, also, the record shows that no defense whatever based upon or involving the construction of the descriptive recitals of the specification, including the claims and the drawings, as to their sufficiency or insufficiency in describing the invention, nor any other insufficiency relating thereto, nor any other statutory notice thereof.

The defendant, during the trial below in argument, raised for the first time the question as to the sufficiency of the descriptive specification in respect to the quantity of the diagonal pitch or angularity of the cutting-edges of the knives to the plane of the curved portions of the groove: and contended that such descriptive specification was not, in that respect, sufficiently full, clear, precise and exact to enable a person skilled in the art to make, construct, and use the invention.

Complainant, on the contrary, contended, in substance, that such questions were not properly before the Court, nor within its jurisdiction, for determination, for the reason that no one of the statutory defenses relative to the subject matter of such questions, nor any defense whatever relating thereto, nor to the construction of any portion of the descriptive specification, nor drawings had been in any manner set up or pleaded as a defense.

Also, that the raising of such questions constituted a *complete surprise* on the part of complainant, and which wholly deprived him of the opportunity of procuring proper material, expert testimony and evidence to prove the sufficiency of such descriptive specification: all of which he could and would, in fact, have procured with sufficient fullness, had such a defense been pleaded.

Record, page 28; Assignment of Errors, No. 10.

That complainant, while still urging objections as to the jurisdiction of the Court to take cognizance of such questions, further contended that even though the proper statutory or other defense had been set up still such descriptive specification, when considered with respect to the perspective drawings to which the specification specifically referred, was in all respects sufficient within the meaning of the Patent Act.

Had the defense, embodied in the Court's said decision, been alleged by defendant in proper pleadings, as required by said Section 4920, complainant would have had the opportunity, and would in fact have shown by sufficient evidence that the fact of substantially increasing or diminishing the vertical quantity of the diagonal pitch or angularity of the cutting-edges of the knives would not have the mechanical effect of changing or varying the *uniformity* of the *position* of the cutting-edges of the knives relative to their *location* upon a line *transversely* to the *axis* and *grain* of the material

to be dressed, and also relative to the *uniformity* of the *quantity* of pitch or angularity along the *whole* line of the cutting-edges of the knives in operative work: nor of changing or varying the mode of operation of the invention in any respect whatever, *except* in relation to the quantity of *vertical* pitch or angularity of the knives: and that the invention in its enlarged or varied scope would *still produce* operative results and effects, materially and substantially different from and superior to that of said devices.

Also, that the mere enlargement of the operative scope of the invention, by increasing or diminishing the quantity of the vertical pitch or angularity, either above or below that perspectively shown by the designated drawing, and described as producing such superior results and effect, does not have the mechanical or the geometrical effect of bringing such expanded scope of the invention into the operative scope of the organic plan of said devices: that the operative scope of the invention is insusceptible of being made to cover that of said devices: and do not in any manner sustain to that of such devices the relation of equivalence, nor substantial equivalence.

It therefore follows, that, however true it may be that the extended operative scope of the invention,—by reason of the *non-limitation* of the invention to the particular pitch or angularity shown perspectively by the designated drawing, which is, in fact, as shown by the evidence, 45 degrees, and productive of the effect described in the specification,—produces approximate though inferior results, nevertheless such approximate results do not sustain any proper relation of equivalence to the results produced by the organic plan of said devices.

It is thus shown how indispensable and essential it is, in the administration of justice, that the proofs and findings of facts and of the law should strictly conform to the allegations and issues raised by the pleadings: and of what grave importance is the established rule, that the *allegata* and *probata* must be in harmony and coequal in their scope: a rule expressly intended to effectually prevent irremediable *surprise* upon the trial of the cause, when the doors are closed to the production of new evidence to meet new issues raised in an *impromptu* manner during the trial and argument of such cause.

VI.

The complainant presents to this Honorable Court for consideration, as being pertinent, and involved in, and having relation to, the decision of the Court below, the questions following:

In Letters Patent, in mechanism:

First—Do the provisions of section 4889 of the United States Statutes, when considered in connection with the general provisions of the Patent Act, contemplate that the drawings in a patent constitute a part of the specification in such a sense, that the inventor in his application may make and constitute, in the recitals of the specification, specifically designated part or parts of such drawings, practical working patterns, *in fact*, of any particular form, dimension, or relative juxtaposition in combination of one or more constituent part or parts of the invention: where such recitals specifically describe and designate such form, dimension, or relative juxtaposition, but without specifically limiting the same as to extent or quantity, and where such recitals specifically refer to and designate particular part or parts of such drawings as showing, *in fact*, the particular limitation as to extent or quantity of such form, dimension, or relative juxtaposition in combination of such constituent part or parts, and which such recitals describe as being productive in the estimation of the inventor of the most perfect results and effect, and where the specification describes such results and effect?

Second—Will such perspective working pattern, thus showing and denoting, *in fact*, the extent or quantity of such form, dimension, or relative juxtaposition in combination, constitute, within the meaning of said Section 4889, and of the Patent Act, an equivalent, as to sufficiency of description, of a description,—as to the extent and quantity of such form, dimension, or relative juxtaposition,—expressed in terms of arithmetical measurement or mensuration?

In Letters Patent, in mechanism: wherein the descriptive specification, when construed in connection with and in the light of the drawings, describe the several structural constituent parts of the invention in such full, clear, concise and exact terms as to enable a person skilled in the art to which it belongs, or with which it is most nearly connected, to make, construct, and use the same: and wherein such structural parts of the invention are described as producing, in the estimation of the inventor, the most perfect operative results and effect, and wherein such results and effect are specifically described: and wherein the descriptive recitals impliedly denote that the inventor does not intend to limit the invention to the particular form, dimension, or relative juxtaposition in combination of some one or more of such described constituent parts: and wherein such *non-limitation* has the effect of enlarging the operative scope of the invention so as to produce in such extended operative scope, proximinate, though inferior results and effect: and inferior, presumptively, in proportion to the extent of the expansion of the same.

Will such *non-limitation* of the invention to the particularly described structural constituent parts, described as producing the most perfect results and effect, have the effect of negativing the invention *as described?*

First—In a suit in equity, brought for infringement of Letters Patent for an invention in mechanism, asking for equitable relief by issuing of the proper injunction, and for an accounting of incomes and profits on the part of the defendant by reason of such infringement:

Is it competent and within the jurisdiction of the Court upon the trial of such cause to take judicial cognizance and proceed to the determination of questions of fact and of law against the complainant, embodying and constituting the defense, namely: that the description of the specification in such Letters Patent does not describe the invention relative to one or more of its specifically stated structural constituent parts, or of their combination, and constituting a material part thereof, in such full, clear, precise, and exact terms as to enable a person skilled in the art, to which it appertains, or with which it is most nearly connected, to make, construct and use such invention—where the record shows that no defense embodied in such questions of fact and of law has in any manner been set up nor alleged, nor any issue made in any pleading by the defendant involving the same, and where no allegation nor charge has been made in any pleading by the defendant, namely: to the effect that it was the inventor's purpose to deceive the public, in making the description of the specification, so as to thus insufficiently describe such structural constituent parts of the invention, and in making the same to contain *less* than the whole truth relative to such invention or discovery, or *more* than is necessary to produce the described effect: and where no statutory notice was given to complainant in defendant's answer, nor in any other manner: and where, by reason of such failure by the defendant, to set up such defense: and by reason of such want of statutory notice, the complainant had no opportunity of procuring competent and sufficient evidence for disproving and rebutting the facts embodied in such questions and in such defense: and, also, where timely objection is made by the complainant to such judicial cognizance and determination of such questions and defense?

Second—In such a suit in equity:

Is it competent and within the jurisdiction of the Court upon the trial of such cause to take judicial cognizance and to proceed to the determination of questions of fact and of law against the complainant, embodying and constituting the defense, namely: that the description of the specification in the Letters Patent do not describe

the invention relative to some one or more of its specifically stated structural constituent parts, or of their combination, and constituting a material part thereof, in such full, clear, concise, and exact manner as to enable a person skilled in the art, to which it appertains, or with which it is most nearly connected, to make, construct and use such invention—where the record of such cause shows that no defense, embodied in such questions of fact and of law, has in any manner been set up or alleged, nor any issue made in any pleading involving the same by the defendant: and where, by reason of such failure to set up such defense, and by reason of such want of statutory notice, the complainant has had no opportunity of procuring competent and sufficient evidence for disproving and rebutting the facts embodied in such questions and such defense: and where timely objection was made by complainant to such judicial cognizance and determination of such questions and defense?

Third—Can such a defense, under such a state of facts as are last above recited, be made available for negativing the validity of such Letters Patent, where the defendant has not in any manner alleged or charged in any pleading to the effect that it was the inventor's purpose to *deceive* the public in making the description of the specification so as to thus insufficiently describe such structural constituent parts of the invention, and in making such descriptive specification to contain *less* than the whole truth relative to the invention or discovery, or *more* than is necessary to produce the described effect?

Fourth—Can such a defense be made available to negative the validity of such Letters Patent, where the fact of any such purpose on the part of the inventor to thus deceive the public is not supported by any evidence produced, nor any such fact is found upon the trial of such cause?

In a suit in equity, brought for infringement of Letters Patent for an invention in mechanism, and asking equitable relief by the issuing of the proper writ of injunction, and for an accounting of incomes and profits on the part of the defendant by reason of such infringement:

Is it competent and within the jurisdiction of the Court upon the trial of such cause to take judicial cognizance and proceed to the determination of questions of fact and of law against the complainant, embodying and constituting a defense to such cause, comprehended within the subject matter and meaning of the following provisions of section 4920 of the United States Revised Statutes, to-wit: "That, for the purpose of deceiving the public, the description of the specification filed in the Patent Office is made to contain less than the whole truth relative to the invention or discovery, or

more than is necessary to produce the described effects"—where the record of such cause shows that no such defense, thus embodied in such questions of fact and of law, has in any manner been set up or alleged, nor any issue made in any pleading by the defendant, involving the same: and where no statutory notice of any such defense was set forth in defendant's answer, nor in any manner, has been given to the complainant: and where, by reason of such failure to set up such defense, and by reason of such want of statutory notice, the complainant has had no opportunity of procuring competent and sufficient evidence for disproving and rebutting the facts embodied in such questions and in such defense: and, also, where timely objection is made by the complainant to such judicial cognizance and determination of such questions and defense?

In such suit in equity, in Letters Patent in mechanism:

Wherein the descriptive specification, including the drawings, describes the structural constituent parts of the invention in such full, clear, concise and exact terms as to enable a person skilled in the art, to which it appertains, or with which it is most nearly connected, to make, construct and use the same, and of which the inventor is the original and first inventor: and wherein such structural constituent parts of such invention are described as being productive, in the estimation of the inventor, of the most perfect results and effect: and wherein the recitals of the specification *impliedly* denote that the inventor does not intend to limit the invention as to extent, quantity, or degree, to the particularly described form, dimension, or relative juxtaposition in combination of one or more of such described constituent parts: and wherein such non-limitation has the implied effect of enlarging, as to extent, quantity, or degree, the operative scope of the invention so as to produce in such *extended* operative scope proximate, though inferior operative results and effect: and impliedly as, also, in fact, inferior in proportion to the extent of the expansion of such scope:

Will such implied non-limitation of the invention have the effect of negativing the validity of the invention as embodied in such particularly described organism?

In such suit in equity, in Letters Patent in mechanism:

Wherein the descriptive specification describes the particular structural constituent parts of the invention in such full, clear, concise and exact terms as is required by and within the meaning of the Patent Act: and, further, describes the same to be, in the estimation of the inventor, productive of the most perfect results and effect: and of which mechanism such inventor is the original and first inventor: and which constitutes a material and substantial part of such invention, and distinctly distinguishable from any other

described or claimed part: and, also, claimed without any wilful default or intent to deceive, defraud or mislead the public: and wherein the descriptive recitals of the specification impliedly denote that the inventor does not intend to limit the invention as to extent, quantity, or degree, to the particularly described form, dimension, or relative juxtaposition in combination of one or more of its constituent parts: and wherein it is impliedly evident, as, also, in fact, that such structural mechanism, when modified or varied in extent, quantity, or degree of as to form, dimension, or relative juxtaposition in combination of one or more of its constituent parts, is *so impaired* in its operative work as to be productive of proximate inferior results and effect: and inferior in proportion to the extent of such variations and modifications:

Will such non-limitation have the effect, as an implied enlargement or expansion of the operative scope of the invention, beyond and in excess of that embodied in its described structural organism, constitute a material and substantial part of such invention within the meaning of the provisions of section 4922 of the United States Revised Statutes?

Also, even though such implied enlargement of the operative scope of the invention may cover, to some extent, the operative scope of prior devices, would the same have the effect to negative the validity of the real invention embodied in such described structural mechanism so as to require the filing and entering of a disclaimer of such *excess* in operative scope, within the meaning of the *provisions* of said section 4922?

Also, will the mere fact, *without more*, of such implied non-limitation of the invention as to extent, quantity, or degree, where such variations or modifications so impair the operative scope of the invention as to produce proximate inferior results and effect, and inferior in proportion to the extent of such variations or modifications, have the effect in any case to negative or impeach the validity of such *real* invention embodied in the described mechanism, which is described as producing, in the estimation of the inventor, the most perfect results and effect, in the *absence* of any intent to deceive, defraud, or mislead the public by means of such implied non-limitation?

Also, where questions of fact and of law involving the validity of the invention by reason of implied non-limitation of the invention as to extent, quantity, or degree of the particularly described form, dimension, or relative juxtaposition in combination of one or more of its constituent parts of its structural mechanism, as presented in the Court's construction of the descriptive specification, including the drawings: or for any *other cause* involving the validity of the real

invention embodied in the particularly described mechanism, by reason of the inventor claiming in his specification some material and substantial act or thing *beyond* and in *excess* of such specifically described structural mechanism, as to which he had no legal or just right to claim, as comprehended within the subject matter of the provisions of said section 4922:

Is it competent and within the jurisdiction of the United States Circuit Court of Appeals, for the first time during the pending of such suit in equity to take, upon its own motion, judicial cognizance of such questions of fact and of law, and to determine the same against the complainant by rendering a decision negativing the validity of the *whole* invention: where no such defense has been set up by the defendant directly, nor by fair implication presenting any issue involving the subject matter of such questions, nor of such particular construction of the specification, as rendered it necessary to file and enter a disclaimer, as provided in said section 4922: and where by mistake, or accident or inadvertence, such inventor has claimed in his specification to be the original and first inventor of a part in *excess* or *beyond* that real and substantial part of his invention embodied in such particularly described structural mechanism of which he is the original and first inventor, and is truly and *bona fide* his own: and which is definitely distinguishable from any other claimed parts, and from such parts in such excess?

Also, where it is shown that the inventor or patentee is the real and *bona fide* original and first inventor of a material and substantial part of the invention, as embodied in the specifically described structural mechanism, and distinctly distinguishable from any other part either expressed or implied, and that any claim in excess thereof was the result of mistake, accident or inadvertence:

Is it necessary, under the provisions of said section 4922, in order to defeat or impeach the validity of the real invention, so embodied in the specifically described structural mechanism, that the defendant affirmatively alleges in his answer or pleading the fact that such inventor had, in his specification, claimed to be the original and first inventor of such part, so in excess of his real invention, with wilful default or intent to deceive or defraud or mislead the public?

So, also, is it necessary in setting up any such defense that the defendant, in his answer or pleading, specifically designate and point out the particular described matter in the specification and drawings, comprehending and constituting the matter so in excess of the inventor's real invention?

So, also, where such defense is not substantially so set up or

alleged, is it competent or within the jurisdiction of Court to take judicial cognizance of such defense?

Also, do the provisions of said section 4922, relating to the inventor's right to file and enter in the Patent Office a disclaimer as provided in said section and relative to questions of unreasonable delay in so doing, contemplate that such right to file and enter such disclaimer may be at once disposed of by the Court against the complainant, without granting any time to enter such disclaimer, where no defense has been set up by the defendant directly, nor by fair implication presenting any such issue?

VII.

It has been above shown the decision of the Court construing the descriptive specification, including the drawings upon its face, held that the whole of such descriptive specification is insufficient and invalid: for the reason that the same was made to contain *less* than the whole truth relative to such invention by omitting to show in terms the arithmetical number of degrees of the diagonal pitch or angularity, at which the cutting-edges of the knives were presented to the plane of the curved portions of the groove, in addition to the perspective drawings showing and indicating, in fact, such pitch or angularity as a perspective pattern: and for the further reason that such specification was made to contain *more* than is necessary to produce the described effect, by the recitals thereof *impliedly* denoting that the inventor did not intend to limit the invention to the particular pitch or angularity of the cutting-edges of the knives shown and indicated, in fact, by the denoted drawing.

Such a construction of the descriptive specification, upon its face, had the effect of practically eliminating the whole descriptive specification, including the drawings, from any consideration by the Court.

The descriptive specification, including the drawings, having thus been eliminated: the descriptive recitals of the *claims* constituted the only *remaining* description relative to character and description of the invention, which could be used in the process of comparing the structural constituent parts of the invention with the description of the mechanical construction of the several devices and patents produced by the defendant.

The recitals of the claims constitute a summary or brief description of the construction of the invention to the extent only of indicating the particular parts claimed, as such invention, without entering into the particular details of the particular mode or manner of constructing the same into a completed organism: and in de-

noting the several parts so claimed, general descriptive words and verbal expression are used, and, while they clearly point out the several parts claimed, do not denote their particular form, dimension, or relative juxtaposition in combination, other than in a summary manner, and *refer*, by *legal necessary implication*, to the descriptive specification and drawings for the specifically detailed description of each several constituent part, including their relative juxtaposition in combination: and for definitely distinguishing such constituent parts and their combination in a completed organism, and as embodying the claimed invention, from that of all prior devices and patents: such was the particular and *distinctive office* of the descriptive specification, including the drawing, and *not* that of the recitals of the claims.

The Court found from the inspection of the recitals of the claims that the same denoted that there was claimed therein the following:

"A cutter-head made of two disks: — that they had cutter-knives inserted through the recesses extending from the outer face of each disk into the groove, and forming beds for cutters and spouts for the discharge of chips: the slotted knives were secured in the openings and adjustable longitudinally therein by set-screws."

These description words of the parts named were taken directly from the recitals of the *claims* of the specification, in every material sense: such specified parts, however, contain but a *portion* of the parts claimed only.

Such descriptive words in the claims were *not intended* to be so *definitely* descriptive of the structural parts of the invention as to enable a person skilled in the art to *make*, *construct* and *use* the invention: nor to definitely distinguish the particular detailed structural organism of the invention, independently of any reference to the descriptive specification, including the drawings.

The Court therefore found that such summary description of the claims denoted by the recitals did not definitely describe any specifically detailed structural organism embodying an invention, definitely distinguishable from the mechanical constituent parts of the devices and patent produced by the defendant, when taken *collectively*.

It is proper here to state that *no one*, taken severally, of the devices, or patents produced by the defendant, embodies or comprehends within its mechanical structure the *whole* of the Caverly invention as described in the descriptive specification, including the drawings and claims — *even* in the most liberal view in which such devices and patent can be considered in defendant's favor.

It will be thus seen that the Court's decision, with respect to

the question of anticipation, was based solely upon the *summary* recitals of the claims in which the several parts claimed were designated by general name or appellation, and which were not intended by the inventor to give a definitely detailed description of the *actual* physical mechanical mode of construction of the invention in a complete organism, without any reference to the descriptive specification including the drawings—the particular office and functions of which are to point out in detail the particular mode of constructing such completed organism.

It also appears from the Court's opinion that the Court received in evidence the A. A. Wilder, No. 38,085, as anticipating evidence, for the purpose of determing the question of *novelty* of the Caverly invention: notwithstanding no notice of the existence of such patent was given in defendant's answer, and notwithstanding complainant's timely objection to the reception of such patent in evidence by reason of the want of such statutory notice thereof.

VIII.

The complainant further presents to the Honorable Court, for consideration as being pertinent to the decision of the Court below, the following questions:

In Letters Patent, in mechanism: where the invention is an entirety, consisting of a separate organism, embodying in whole, or in part, old constituent elements, and which are incapable of division or separate use:

First—Can the novelty of such invention be negatived, under a defense of want of novelty, by the defendant simply making proof that a part of such invention is found in one prior machine, patent or publication, and another part of such invention is found in another machine, patent or publication, and so on, indefinitely: and from the whole number of such machines, patents or publications, establish the issue of want of novelty against the plaintiff or complainant?

Second—Will any alleged anticipating machine, patent or publication, have the effect, as evidence, of negativing the novelty of such subsequent invention, *unless* such anticipating machine, patent or publication, contains within its own descriptive organic structure each and every material and substantial constituent structural part of the organism of such invention: where such invention constitutes an entirety incapable of division or separate use?

In Letters Patent, in mechanism:

Is it competent, under the provisions of section 4920 of the Re-

vised Statutes of the United States, to receive a prior patented invention in evidence for the purpose of negativing novelty of a subsequent invention, where no statutory notice of the existence of such patent has been given as provided in the provisions of said section in the answer of the defendant, in a suit in equity brought for infringement of such invention?

In Letters Patent, in mechanism:

First—Is it competent for the Court to determine the question of anticipation, without any reference to the specifically described mechanical construction of the invention as described in the descriptive specification, including the drawings, by simply comparing the general summary words and verbal expression of the claims, denoting distinctly the several parts claimed as the invention, but not describing in particular detail the actual mechanical mode of construction of the same in a completed organism other than by reference to the descriptive specification including the drawings—with the general summary of the elementary parts of prior devices, patent or publication, containing parts in their structure, which may be denoted in a summary way by the same general name or appellation as that used in the recitals of the claims?

Second—Will any such prior patent or publication be held to negative the novelty of a subsequent invention, *unless* the descriptive recitals contained in the specification of such patent, or in such publication, exclusive of the drawings in either, would enable a person skilled in the art, to which it appertains, or with which it is more nearly connected, to make, construct and use such subsequent invention?

The complainant here refers this Honorable Court to the brief of argument annexed to this petition, and made part thereof, and as being relevant to the several questions hereinbefore presented to this Court for consideration: and wherein the complainant shows and contends that each one of such several questions embody and relate to subject matter of much gravity and importance, in the administration of justice in connection with patented inventions and litigation relating thereto: and especially relative to litigants having interest in such inventions, to the end, that they may receive full protection under the several provisions of the Patent Act as shown by the United States Revised Statutes: and that such provisions may be administered by the United States Courts below of coördinate jurisdiction with substantial uniformity, and, also, in accordance with the decisions of this Honorable Court: and, also, to the end, that certain questions and matters of practice relative to pleading and issues therein, and with respect to the admissibility and sufficiency of evidence in litigated causes, which questions and mat-

ters of practice have not been judicially determined by this Honorable Court: and, also, to the end, that the provisions of the Patent Act may be construed and their meaning declared with certainty so that the United States Courts below may be enabled to administer such provisions with uniformity.

IX.

It is recited in the Court's opinion as follows:

"It is to be observed, too, that if the invention consists in the exact angle at which the knives stand, infringement cannot be established without proof that the infringing machines stand at that exact angle."

This recital in the Court's opinion *implies* that there was no such proof in this cause, and is made by the Court by reason of manifest *mistake* and *inadvertence* of the evidence.

The defendant's expert witness, C. O. Nason, testifies to the effect that he had been connected with Deere & Company for thirty-three years, and that during that time he had been familiar with all the machinery in use by said Deere & Company.

"Int. 8.—Please state wherein the cutter-head in use by defendant, on account of which this suit is brought, differs, if at all, from the cutter-head shown and described in the Caverly patent, and state what effect is produced by such change."

"Answer.—In the heads the difference is, simply, that the heads used by Deere & Company have a space in the center between the knives, the space being formed, in the defendant's case, with a steel plate between the two halves of the cutter-head."

It is thus seen that the defendant's own expert testifies that there exists *no difference* in the construction of defendant's cutter-heads, and that *shown* and *described* in the patent, outside the specifically mentioned part, which relates to another and immaterial part.

If the Court had not inadvertently overlooked this testimony of defendant's *own* witness, who has been interested in the defendant corporation for thirty-three years, and interested in the result of this suit, it seems certain that the Court would not have found that there was no proof as to the angularity of the knives in defendant's infringing cutter-heads being the same as described and shown in the Caverly patent.

Also, complainant's expert, John W. Bartlett, testified that there was no difference in the mechanical principles and mode of

operation of the invention described in the Caverly patent and the infringing cutters of Deere & Company.

Record, page 45; Int. 46, and answer.

Also, complainant's expert, J. G. Aram, testifies as follows:

"The machine I saw in operation at Deere & Company's shop is *fully described* in complainant's Letters Patent—that is, in the *specifications* and *drawings* thereof."

Record, page 57; Int. 24, and answer.

In view of such testimony, there is no possible room for doubt that the Court inadvertently overlooked all the foregoing evidence.

X.

The following is a portion of the descriptive recitals of the specification in the Caverly patent, and to which allusion has hereinbefore been made:

"The knives are adjusted to the disks on sharply inclined beds in one end of the openings in the disk, thus presenting the cutting-edges of the knives diagonally to the plane of the curved portions of the disks, *as shown in* Figure III, similar to the manner in which plane-bits are secured to the plane-frame."

"Figure III is an edge-view of one-half of a cutter-head with parts cut away at x x in Figure II, *to show the adjustment of the knives.*"

Figure III of the drawings, thus referred to in the foregoing recitals of the specification, in fact, perspectively exhibits and shows a perfectly plain and *practical pattern* of the *particular quantity* of the diagonal pitch or angularity, at which the cutting-edges of the knives are presented to the curved portion of the disks or groove.

It was also shown by complainant's expert witness, John W. Bartlett, that such perspective drawing or pattern thus exhibited in Figure III shows, in fact, according to practical arithmetical *measurement*, the quantity of such diagonal pitch or angularity to be 45 degrees.

Record, page 100; Int. 10, 11, 12, and answers.

It is thus seen that the descriptive recitals of the specification *expressly recite* that the knives are adjusted to the disks upon sharply inclined beds: and then such recitals further *expressly* and specifically refers to Figure III, of the drawings, as showing and exhibiting the particular *quantity* of *diagonal pitch* of such sharply-inclined beds, at which the cutting-edges of the knives are presented to the curved portions of the disks or groove.

The inventor thus, in *express* verbal recitals in the descriptive specification, constituted Figure III as a descriptive perspective practical diagram or pattern showing the quantity of diagonal pitch at which the knives were to be adjusted.

The recitals of the specification are thus so affirmatively *explicit* in thus constituting Figure III as a *practical* pattern of the construction of the sharply inclined beds, as to quantity of diagonal pitch, that the decision of the Court, in construing the descriptive specification, including the drawings, to the effect that the same constitute an *insufficient* description of the particular quantity of such diagonal pitch or angularity, *must logically mean* that the descriptive recitals of the specification possess *no legal function* to constitute, by any express verbal and appropriate terms, any portion of the drawings as a perspective practical drawing or pattern, descriptive of any constituent part of the invention.

The following are recitals of the Circuit Court's opinion:

"The proof shows, by complainant's expert, John W. Bartlett, that 45 degrees is the proper angle at which the plane-bits or cutter should be set, in order to do the most effective and smoothest work: and the complainant's proof tends to show that the knives in complainant's patent are set at about that angle. It is sufficient to say that there is nothing in complainant's patent to show that the knives in complainant's patent are set at about that angle." * *

"'They (the knives) are adjusted to the cutter-head upon sharply inclined beds * * presenting the cutting-edges diagonally to the plane of the curved portions of the disks * * similar to the manner in which plane-bits are secured to the plane-frame.'"

Record, page 19, lines 37–52; see Assignment of Errors No. 7, page 26.

It will thus be seen that the Circuit Court, in construing the descriptive recitals of the specification, wholly ignored and eliminated from such descriptive recitals all the drawings of the patent, and, also, all the express references made in such recitals to specified portions of the drawings, including the references "*as shown in* Figure III:" also the following express reference:

"Figure III is an edge-view of one-half of a cutter-head with parts cut away at x x in Figure II, *to show the adjustment of the knives.*"

Lines 46–49 of specification.

It will be seen, in the recitals of the Circuit's opinion last above set forth, that the Court in reciting the written descriptive recitals of the specification, *last above* set forth, with a view of ex-

pressing more clearly the Court's meaning with respect to the unessential and unimportant functions possessed by the drawings as a descriptive medium, eliminated from such recitals of the specification the reference words, "*as shown in* Figure III," as being wholly immaterial and incompetent for any purpose connected with the description of the invention.

In the Act of 1870, and being sections 4884 and 4889 of the United States Revised Statutes, it is expressly provided that the drawings shall be attached to the patent as a part of the specification and become a part of the patent.

But the Circuit Court, according to its opinion, decided that the drawings do not constitute any part of the specification in any sense that would constitute such drawings competent descriptions of any structural constituent part of the invention: that they possess no function or element of descriptive competency of any structural constituent part of the invention: that no references in the written specification, to such drawings or to any part thereof, will have the effect, render the perspective descriptions of the same, as competent descriptions of any structural part of the invention: that the written recitals of the specification possess the sole function or element of descriptive competency of the structural organism of the invention.

Such was the decision of the Circuit Court when stated in brief general terms: a decision excluding every meaning or interpretation of the provisions of said sections 4884 and 4889, when construed in connection with section 4888 of said Revised Statutes, that would render the perspective descriptions of the drawing as possessing the functions and elements of affirmative descriptive competency as material and substantial component part of the descriptive specification.

Such a decision wholly practically nullifies the provisions of said section 4884 and 4889, and renders the same without any substantial meaning or purpose.

The decision of the United States Circuit Court of Appeals followed substantially views of the Circuit Court in its construction of said sections 4884 and 4889 of the Revised Statutes: its decision practically leaves out of view every interpretation and meaning of the provisions of said sections 4884 and 4889, when construed in connection with the provision of section 4888 of such Revised Statutes, that would render the perspective description of the drawing as possessing the functions and elements of affirmative descriptive competency as a material and substantial component part of the descriptive specification.

The Court held substantially to the effect that the drawings in the patent set forth in this cause, including Figures II and III, do not possess the function of any definite descriptive competency, nor constitute any integral competent factor in describing the *quantity* of the diagonal pitch or angularity at which the cutting-edges of the knives are presented to the curved portions of the disks in groove: notwithstanding the same perspectively describes such quantity of diagonal pitch or angularity, in like manner as a perspective pattern, sufficiently full, clear, and exact, to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct and use the same: and notwithstanding it was shown by expert testimony, that such perspective description showed and indicated, in fact, a diagonal pitch or angularity of 45 degrees.

Record, page 100; Ints. 10, 11, and answers.

The Court further held substantially to the effect that such perspective description to be incompetent to describe such quantity of pitch or angularity, although it was substantially admitted in the opinion of the Circuit Court, that such perspective description did, in fact, show and indicate, in like manner as a perspective pattern, such quantity of diagonal pitch or angularity to be 45 degrees: nor was there any contrary contention, with respect to such fact, on the part of the defendant: nor did the United States Circuit Court of Appeals indicate in its opinion any doubt as to such fact, but held that the perspective description of such drawings were incompetent to show such fact, and that for that reason, the "descriptive specification was made to contain *less* than the *whole truth* relative to the invention:" and that such descriptive specification did not sufficiently describe the invention: the Court further holding that specifically stated references to such drawing, or to designated portions of the same in the descriptive recitals of the specification, did not have the effect to render such perspective description competent descriptions: also, that the written descriptive recitals in specifications constitute the sole competent description, and constitute the sole test of sufficiency of the description of patented inventions.

Such holding practically nullifies the intent and meaning of the provisions of said sections 4884 and 4889, and renders the same without any substantial meaning or purpose.

Complainant contended substantially in argument:

1. That such subject matter relative to the construction of the descriptive specification, including the drawings thereof, was not properly before the Court for consideration, for the reason that no defense had been set up by the defendant in accordance with the provisions of sections 4920 and 4922 of the United States Revised Statutes: nor otherwise presenting such questions or issues.

2. That under the operation of the provisions of said sections 4884 and 4889 of the United States Statutes the drawings in Letters Patent constitute an affirmative substantial component part of the specification in such Letters Patent.

That such drawings possess functions of affirmative descriptive competency independently of the written recitals of the specification, in perspectively describing material substantial constituent structural parts of the invention, where there exists no irreconcilable conflict between such perspective description and the written descriptive recitals of the specification.

That it is not essential to the descriptive competency of such drawings, or to portions thereof, that there should be specifically stated references thereto in the written recitals of the specification relative to particular structural constituent parts of the invention: that such perspective descriptions are by force of statutory provisions an affirmative substantial component part of the specification, and as such are to be judicially noticed and recognized in construing the specification, including the claims.

That such perspective descriptions are to be treated and held as competent and sufficient descriptions of the structural constituent parts of the invention within the meaning of the Patent Act: where there exists no insuperable conflict or repugnancy between such perspective descriptions and the written recitals of the specification, including the claims: where such perspective descriptions show and indicate, in fact, the construction of such described constituent parts with sufficient fullness, clearness, and exactness, to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct and use the same.

That where the written recitals of the specification are either silent, indefinite, obscure, or ambiguous, the perspective descriptions cover or supply such imperfect descriptions of the written recitals of the specification: where there exists no insuperable conflict or repugnancy between such perspective descriptions and the written recitals of the specification, including the claims.

That the perspective description of the drawings, perspectively describing, in fact, in like manner as a pattern, any particular form, dimension, quantity, or juxtaposition in combination of particular structural constituent parts of the invention, constitutes an equivalent of a description thereof expressed in terms of arithmetical measurement or mensuration.

XI.

Your petitioner, the complainant, further shows to this Honor-

able Court that the United States Circuit Court of Appeals, for the Sixth Judicial Circuit, in the case of *Michigan Central R. R. Co.* vs. *Consolidated Car Heating Co.*, 67 Fed., 121, in its opinion filed April 2, 1895, construing the provisions of said act of 1870, sections 4884 and 4889 of the United States Revised Statutes, recognized and held substantially when stated in general terms the following views:

1. That under the provisions of said sections 4884 and 4889 of the Revised Statutes the drawings in Letters Patent constitute an affirmative substantial component part of the specification in such Letters Patent.

2. That such drawings, by force of such statutory provisions, possess functions of affirmative descriptive competency independently of the written recitals of the specifications, in perspectively describing material and substantial constituent structural parts of the invention; when there exists no irreconcilable conflict or repugnancy between such perspective descriptions and the written descriptive recitals of the specifications.

3. That it is not essential to the descriptive competency of such drawings that there should be any specifically stated references to the drawings, or to portions thereof, in the written recitals of the specification, relative to particular structural constituent parts of the invention; that such perspective descriptions are, by the force of statutory provision, an affirmative substantial component part of the specification, and as such are to be judicially noticed and recognized in construing the meaning of the descriptive specification, including the claims.

4. Such perspective descriptions of the structural constituent parts of the invention are to be treated and held as competent and sufficient descriptions of such constituent parts, within the meaning of the Patent Act, when there exists no insuperable conflict or repugnancy between such perspective descriptions and the written descriptive recitals of the specifications, including the claims; and where such perspective description shows and indicates *in fact* the construction of such described constituent parts with sufficient fullness, clearness and exactness to enable a person skilled in the art to which it appertains, or with which it is most nearly connected, to make, construct and use the same.

5. That the perspective description of the drawings, or of portions thereof, constitute descriptive competency in describing structural constituent parts of the invention, where the written descriptive recitals of the specification are either silent, indefinite, obscure, or ambiguous relative to the particular structural constituent parts of the invention so particularly described; where there

exists no insuperable conflict or repugnancy between such perspective descriptions and the written descriptive recitals of the specifications, including the claims; and where such perspective descriptions in fact are sufficiently full, clear, and exact to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct and use the same.

6. The perspective description of the drawings, or of portions thereof, perspectively describing, in fact, in like manner as a pattern any particular form, dimension, quantity, or relative juxtaposition in combination, of particular constituent structural parts of the invention, constitute, within the meaning of said statutory provisions, the equivalent of a description thereof expressed in terms of arithmetical measurement or mensuration; where such perspective descriptions are in fact sufficiently full, clear, and exact to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct, and use the same.

Such are the necessary conclusive deductions and results inevitably incident to and attending the judicial recognition by the Court, that the drawings constitute an affirmative substantial component part of the specifications, under the provisions of said Sections 4884 and 4889 of said Revised Statutes, and, as such, stand on equal grounds of *descriptive competency* with the written descriptive recitals of the specifications.

XIV.

Complainant presents to this Honorable Court for consideration, and for ruling thereon, as being pertinent to the decision of the Court below, the following questions:

In Letters Patent, in mechanism:

First—Do the provisions of the Act of 1870, or Sections 4884 and 4889 of the United States Revised Statutes, contemplate that the drawings in Letters Patent shall constitute an affirmative substantial component part of the specification in such Letters Patent?

Second—Do such statutory provisions contemplate and include within their meaning that the drawings in such Letters Patent shall possess functions of affirmative descriptive competency independently of the written recitals of the specification, in perspectively describing material substantial constituent structural parts of the invention: where there exists no irreconcilable conflict or repugnancy between such perspective description and the written descriptive recitals of the specification, including the claims?

Third—Is it essential, within the meaning of such statutory provisions, to the descriptive competency of such drawings, or any

portion thereof, that specifically stated references to such drawings or portions of the same be made or recited in the written recitals of the specification relative to particular structural constituent parts of the invention perspectively described by such drawings or portions of the same?

Fourth—Do such statutory provisions contemplate that the drawings constitute such an affirmative substantial component part of the specification in such a sense that the same should be judicially noticed and recognized, in the absence of any such recited references thereto, in judicially construing the meaning of the descriptive specification, including the claims?

Fifth—Is it contemplated, within the meaning of such statutory provisions, that such perspective descriptions of the drawings describing structural constituent parts of the invention are to be treated and held as competent and sufficient descriptions of such constituent parts, within the meaning of the Patent Act: where there exists no insuperable conflict or repugnancy between such perspective description and the written descriptive recitals of the specification, including the claims: and where such perspective description shows and indicates *in fact* the construction of such constituent parts with sufficient fullness, clearness, and exactness to enable a person skilled in the art to which it appertains, or with which it is most nearly connected, to make, construct, and use the same?

Sixth—Do such statutory provisions contemplate that the perspective description of the drawings or any portion thereof shall constitute descriptive competency in describing structural constituent parts of the invention; when the written descriptive recitals of the specifications are either silent, or indefinite, or obscure, or ambiguous relative to the particular structural constituent parts of the invention so perspectively described: where there exists no insuperable conflict or repugnancy between such perspective descriptions and the written descriptive recitals of the specification, including the claims: and where such perspective descriptions *in fact* are sufficiently full, clear, and exact to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct, and use the same?

Seventh—Do perspective descriptions of the drawings, or portions thereof, perspectively describing in fact, in lik emanner as a pattern any particular form, dimension, quantity, or relative juxtaposition in combination of particular constituent structural parts of the invention, constitute, within the meaning of said statutory provisions, the *equivalent* of a *description* thereof, expressed in terms of arithmetical measurement or mensuration: where such

perspective descriptions are in fact sufficiently full, clear, and exact to enable a person skilled in the art, within the meaning of the Patent Act, to make, construct, and use the same?

XV.

Your petitioner further shows to this Honorable Court that it is a matter of much gravity and importance that the provisions of said Sections 4884 and 4889 of the United States Revised Statutes, in connection with Section 4888 of such Revised Statutes, should be judicially construed and interpreted by this Honorable Court, and their true intent and meaning as affecting the true functions and competency of the perspective descriptions of the drawings in letters patent and their true relations to the written descriptive recitals of the specifications, including the claims, be judicially declared: to the end that the several United States Circuit Courts of Appeal and the several United States Circuit Courts may be guided in the administration of justice in patent litigation, in actions at law, and in suits in equity in such courts, by an authoritative decision of this Honorable Court relative to said statutory provisions.

That by reason of the facts aforesaid, the true intent and meaning of said statutory provisions remain in great doubt and uncertainty, to the great prejudice of all persons interested in patented inventions, and of litigants who apply to the United States Courts for relief by bringing suits to that end.

That the United States Circuit Court of Appeals for the Seventh Judicial Circuit judicially declare the intent and meaning of said statutory provisions to be interpreted in one particular manner; and the United States Circuit Court of Appeals for the Sixth Judicial Circuit interpret such intent and meaning of such statutory provisions in another and diverse particular manner.

That if this cause had been brought by your petitioner in the Sixth Judicial Circuit instead of the Seventh Judicial Circuit, the descriptive specification, including the drawings, in the letters patent sued upon therein would have received a judicial construction directly the reverse of that judicially declared in said Seventh Judicial Circuit, and such letters patent would have been sustained.

Your petitioner further states that there are no other provisions in the whole Patent Act with respect to the interpretation of which there has been such conflict and non-uniformity and diversity of views and holdings by the several United States Circuit Courts and Courts of Appeal as the provisions of said Sections 4888, 4884, and 4889 of the United States Revised Statutes; that each one of said Courts has proceeded in its adjudication according

to its own views of the true intent and meaning of said sections without regard to precedents in other courts of coördinate jurisdiction; all of which has rendered the administration of justice, so far as the construction of the provisions of said sections is concerned, ununiform and diverse; and that such non-uniformity and diversity of judicial views and holdings of the courts have had the effect to create great uncertainty and doubt with respect to the validity of a very large portion of letters patent issued by the Patent Office; that the descriptive specifications, including the drawings, constitute the basis of the patent, and which constitute an *implied contract* between the inventor and the Government; that it is a matter of great gravity, importance, and moment that those provisions of the Patent Act which so greatly affect the interpretation of such patent contracts should be judicially construed by this Honorable Court, and their true intent and meaning judicially declared, so that the general public who are interested in such patent contracts may be enabled to know with certaiaty whether the same are valid upon their face, and also thereby secure to citizens of the United States interested in patented inventions the equal and uniform and impartial protection of the laws as guaranteed by the Constitution.

Your petitioner further shows that the questions last aforesaid are questions of gravity and importance within the meaning of the ruling of this Court in the case of *Lau Ow Bew*, 141 U. S., 587; that such questions have been decided differently in different United States Circuit Court of Appeals; and a ruling by this Court is desirable in the interest of uniformity, within the ruling of *Lau Ow Bew* aforesaid.

That your petition, the complainant in this cause, herewith presents to this Honorable Court and annex hereto a duly certified copy of the record of the lower Court as the same appears in United States Circuit Court of Appeals for the Seventh Judicial Circuit, and pray that the same may be made a part of this petition.

Wherefore, your petitioner respectfully prays that a Writ of Certiorari be issued out of and under the seal of this Court, directed to the United States Circuit Court of Appeals for the said Seventh Judicial Circuit, commanding the said United States Circuit Court of Appeals to certify and send to this Court , on a day certain to be therein designated, a full and complete transcript of the record and all of the proceedings of said United States Circuit Court of Appeals in the cause of Herschel Caverly, Administrator of the Estate of Sarah Caverly, deceased, Appellant, vs. Deere & Company, Appellee, No. 112, as identified by the transcript of the record, to the end, that the said cause may be reviewed and determined by this Court as provided by section 6 of the Act of Congress entitled: "An act to establish Circuit Courts of Appeals, and to define and

regulate in certain cases the jurisdiction of the Courts of the United States, and for other purposes"—approved March 3, 1891. And that your petitioner may receive such other and further relief and remedy in the premises as to this Court may seem meet and appropriate and in conformity with said act. And that said decree of the United States Circuit Court of Appeals in said cause, and every part thereof, may be reversed. And your petitioner will ever pray, etc.

HERSCHEL CAVERLY,
Administrator of the Estate of Sarah Caverly, deceased,
Petitioner.

DANIEL B. NASH,
Solicitor and Counsel for Petitioner.

UNITED STATES OF AMERICA,
NORTHERN DISTRICT OF ILLINOIS,
SEVENTH JUDICIAL CIRCUIT. } ss.

Daniel B Nash, being first duly sworn, says that he is Solicitor and Counsel for the petitioner above named and mentioned in the foregoing petition, and, as such, has had personal charge for and in behalf of said petitioner of the cause in the foregoing petition mentioned in the United States Circuit Court for the Northern District of Illinois—Southern Division—and in the United States Circuit Court of Appeals for the Seventh Judicial Circuit; that he has read said petition, and that the facts therein stated are true to the best of his information and belief. DANIEL B. NASH.

Sworn to and subscribed before me this day of A. D., 1895.

CERTIFICATE OF COUNSEL.

I hereby certify that I have carefully examined the foregoing petition and application for a Writ of Certiorari, and that in our opinion the same is well founded, and that the cause is one in which the prayer of the petition should be granted by this Court.

DANIEL B. NASH,
Counsel for Petitioner.

NOTICE.

To Lester L. Bond, Albert H. Adams, Charles E. Pickard, and John L. Jackson, Counsel for Deere & Company:

Take notice that on the day of A. D., 1896, on the opening of the United States Supreme Court, or as soon thereafter as the matter can be heard, we shall move the United States Supreme Court, at the Court room thereof, in the City of Washington, D. C., that the foregoing petition for a Writ of Certiorari be granted.

Dated at Chicago this day of A. D., 189 .

DANIEL B. NASH,
Counsel for Petitioner.

Service of the above and receipt of copy of petition are hereby admitted at Chicago, Ill., this day of 189 .

COMPLAINANT'S BRIEF OF ARGUMENT.

The complainant presents for the consideration of this Honorable Court, in addition to that set forth in his petition, as supplementary thereto, the following Brief of Argument relative to the several questions presented for the Court's consideration:

We desire, as a matter of convenience, and with the permission of the Court, to consider such questions without restriction to the particular order in which the same are presented in the petition.

As the question on pages 23, 24 and the questions presented on pages 41–43 of the petition involve substantially the same subject-matter, the same will be considered together.

The provisions of Section 4889 are as follows:

"When the nature of the case admits of drawings the applicant shall furnish one copy, signed by the inventor or his attorney in fact, and attested by two witnesses, which shall be filed in the Patent Office; and a copy of the drawings, to be furnished by the Patent Office, shall be attached to the patent as a part of the specifications."

The following are recitals of Section 4884 of said Statutes:

"Every patent shall contain a short title or description of the invention or discovery, correctly indicating its nature or design, and grant to the patentee, his heirs or assigns, the exclusive right to make, use, and vend the invention or discovery, * * referring to the specification for the particulars thereof. A copy of the specification and drawings shall be annexed to the patent and be a part thereof."

The following are the recitals of a portion of the Act of 1836, and of Section 5 thereof:

"Every patent shall contain a short description or title of the invention or discovery, correctly indicating its nature and design, and in its terms grant to the applicant or applicants, his or their heirs * * or assigns * * the full and exclusive right * * of making, using, and vending * * the said invention or discovery, referring to the specifications for the particulars thereof; a copy of which shall be annexed to the patent, specifying what the patentee claims as his invention or discovery."

The following are recitals of portions of Section 6 of said Act of 1836:

"Before any inventor shall receive a patent for any such new invention or discovery he shall deliver a written description of his invention or discovery, and of the manner and process of

making, constructing, using, and compounding the same. * * He shall furthermore accompany the whole with a drawing or drawings, with written references, where the nature of the case admits of drawings, * * which descriptions and drawings, signed by the inventor and attested by two witnesses, shall be filed in the Patent Office."

It will thus be seen that at no time prior to the Act of 1870 did there exist any statutory provisions declaring or constituting the drawings a part of the specification, and to be attached or annexed to the patent as being such part of the specification.

Nor did there exist any provision of the statute providing nor in any manner requiring that the drawings shall be attached or annexed to the patent, or in any manner to be a part of such patent.

The previously existing statutes made no further provision relative to the drawings than simply that the same should be filed in the Patent Office, after being duly signed and attested.

It is, therefore, manifest that the statutory provisions of the Act of 1870, a portion of which constitutes the above named Sections 4884 and 4889 of the Revised Statutes, have made very important material changes in the provisions of the prior statutes relative to the functions of the drawings as material and competent descriptive factors in describing the structural constituent parts of the invention.

Said Section 4889 expressly provides that the drawings shall be filed in the Patent Office, and that a copy of such drawings shall be attached to the patent as a part of the specification.

Said Section 4884 expressly provides that a copy of the specification and drawings shall be annexed to the patent and be a part thereof.

In other words, by such statutory provisions the drawings are *incorporated* in the specification as an affirmative component part thereof, and of the patent.

By such statutory act, the specification is composed in part of the written description, and in part of perspective description of the structural constituent parts of the invention:—thus constituting dual descriptions.

The statute contemplates that the written description should be full, clear, concise, and exact, so as to enable a person skilled in the art to make and construct the invention.

In like manner such statute conclusively implies—by incorporating the drawings as a part of the specification—that the perspective description of the drawings should, in like manner, be full,

clear, concise, and exact, so as to enable a person skilled in the art to make and construct the invention.

Such statutory provisions, therefore, contemplate that the specification should embody a written description and a perspective description of the construction of the invention, and that each one of such descriptions should be sufficiently full, clear, concise, and exact to enable a person skilled in the art to accomplish that purpose.

The specification is to be sworn to by the inventor, and, as the perspective drawings are incorporated in such specification, the correctness of the perspective description thereof is supported by the oath of the inventor.

It is therefore seen that the written description and the perspective description are equally supported by the oath of the inventor.

No statutory provision—prior to the Act of 1870—contemplated that the correctness of the perspective description should be supported either directly or indirectly by the oath of the inventor.

The specification—thus composed of the written recitals and of the perspective descriptions of the drawings—constitute one entire instrument, and entire contract between the inventor and the government: and as such, the written descriptive recitals—and such perspective description of the drawings—are required to be construed and interpreted jointly, as one entire instrument, in order to obtain the true intent and meaning of the specification, as an entirety.

The provisions of the Act of 1870 in thus introducing into the Patent Act such new provisions relative to the specification of patents as being constituted and composed of dual descriptions, namely: the written description and the perspective description, were intended to accomplish some definite purpose; and such purpose is clearly and conclusively manifested by the legal operation and effect of such statutory provision, when construed and interpreted in accordance with established principles of judicial interpretation.

Such statutory provisions, when thus judicially interpreted, manifestly have the legal effect of endowing the perspective drawings with the function of affirmative descriptive competency and sufficiency in perspectively describing the structural constituent parts of the invention.

That the statutory provisions, by thus incorporating in the speification both the *written* and the *perspective* descriptions, contemplate that both descriptions should stand on the same basis of descriptive competency and sufficiency, so long as there exists no irreconcilable conflict or repugnancy between such descriptions; that the one should supply the imperfections of the other so long

as no such insuperable conflict or repugnancy is created between such descriptions.

The word "specification" means the *act* of *describing* a particular fact or thing.

Hence, under the Patent Act, the word "specification" means the *act* of *describing* the structural constituent parts of the invention.

But, as we have seen, the statutory provisions constitute the drawings a *part* of such "specification," and therefore such provisions thereby constitute the drawings a *part* of the *act* of *describing* the structural constituent parts of the invention.

The specification, as hereinbefore stated, comprehends both a written description and a perspective description of the invention, and both possess the function of descriptive competency.

This being true, it *cannot* be said that the statutory provisions contemplate that, where the written description by reason of some imperfection is rendered insufficient, the invention, because of such insufficiency, shall be declared invalid: where the specification contains perspective descriptive drawings perspectively describing the particular structural parts of the invention, which were so imperfectly described by the written description: and where such perspective description is, in fact, full, clear, concise and exact, as to enable a person skilled in the art appertaining thereto, to make, construct, and use such invention.

Such a construction would plainly nullify the statutory provisions.

Hence, the construction of such statutory provisions, when construed in *para materia*, mean that the invention is not to be declared invalid by reason of insufficiency of description until it appears that both the written and the perspective descriptions are, when construed as an entirety, insufficient in their descriptions of the invention.

The foregoing views, relative to the construction of said statutory provisions, are in full harmony with the views and holdidg of the United States Circuit Court of Appeals in the Sixth Judicial Circuit, as expressed in the Court's opinion in the case of *Michigan Central R. R. Co.* vs. *Consolidated Car Heating Co.*, 67 Fed., 121.

The complainant brought suit in equity against the defendant for infringement by the defendant upon Letters Patent, originally issued to Cody and Haynes as patentees on October 27th, 1885, the complainant holding the same as assignee.

The question arose in the case relative to the sufficiency of the written descriptive recitals of the specification, including the per-

spective description of the drawings, when properly restricted or limited to their legitimate descriptive scope, to enable a person skilled in the art to which the invention sued upon appertains, or with which it is most nearly connected, to make, construct, and use the same.

The question thus presented to the Court involved, among other questions, the consideration and determination of the particular relations existing under the provisions of the Act of 1870, and constituting Section 4884, as, also, Sections 4889 and 1888 of the United States Revised Statutes, between the written description of the specification and the perspective description of the drawings: as, also, the particular functions of the drawings with respect to their descriptive competency as being a component part of the specification.

The defendant contended that the written descriptive recitals of the specification were extended beyond their legitimate scope, for the reason that certain particular descriptive recitals, which apparently rendered the specification annexed to the patent sued upon sufficiently descriptive of the invention upon which the suit was brought, had been added to the written descriptive recitals prior to the issuing of the Letters Patent: and that such added recitals extended the scope of the original specification so as to include a material and substantial part of the invention sued upon, but which were not included in such original specification: and that such added recitals were not legitimate descriptive recitals of the specification, as the same appeared annexed to the patent.

The Court held that that part of the invention particularly described by such added recitals could not be maintained, *unless* the descriptive recitals of the specification, exclusive of such added recitals, and the perspective description of the drawings as constituting a part of the specification under said provisions of the United States Statutes, were sufficiently full, clear, concise and exact, as to enable a person skilled in the art appertaining thereto, or with which it is most nearly connected, to make, construct, and use the invention covered by such added recitals, and which constitute a material and substantial part of the invention sued upon.

In determining the sufficiency of such descriptive recitals of the specification and the perspective description of the drawings, the Court held that the drawings constitute a part of the specification by the force of the provisions of said Revised Statutes: and that such perspective description became a competent descriptive factor in determining the question of the sufficiency of the description of such invention.

The following constitute the recitals which were added to the

original specification, and which the defendant contended constituted the most material and useful part of the invention set forth in the patent sued upon:

"I supply steam to the upper courses of coils in the car near the center * * the steam traveling * * to the end of the car in pipes inclined downward toward the end of the car, and on its return it travels * * in the lower courses of pipes which incline downward to the center of the car where they connect with a common waste pipe."

The Court, in referring to such added recitals, says:

"In his (Cody's) specification he said nothing about *inclining* of the side coils of his steam pipes, H H, downward from the center of the car where the steam is taken into the car, and also inclining downward the return pipes as they come back to the center and connect with the pipes which carries their contents downward to the trap."

"And the drawings filed with the specification, and which, by the provisions of Section 4884 of the United States Revised Statutes, *become a part thereof*, not only fail to show any such *inclination*, but, on the contrary, show the out-running and returning pipes to be parallel with the floor of the car and with each other."

"Neither do the claims mention any such *inclination* of the pipes. If the specifications had done so that feature could have been read into the claims; for the claims refer to the specifications which, as we have already said, *include* the drawings. But as the specifications give no indication of such feature, but do indicate parallel pipes, the claims must be construed accordingly."

"Counsel for appellees, in discussing this subject, and excusing the insufficiency of the drawings to show this feature of the patented device, urges that the drawings do not prevent such variations in apparatus in form, shape, and proportions as common sense or mechanical skill in the art may suggest- Rather they are addressed to persons skilled in the art, who can supplement them with their technical knowledge."

"Admitting this to be so, and to be applicable to written specifications also, still it carries the doctrine to the verge; and if the drawings and specification fail to indicate the device to those conversant with the art, and having the mechanical skill peculiar thereto, they are insufficient, and the patent does not include the device."

These views of the Court necessarily constitute a *corollary* of the *antecedent* proposition upon which it is based, namely: that drawings, whenever they do, in fact, fully and clearly perspectively

describe the structural constituent parts of the invention, possess the function of descriptive competency, and stand upon an equal basis of descriptive competency with the written descriptive recitals of the specifications: where there exists no irreconcilable conflict or repugnancy between such descriptions.

The holding of the Court thus conclusively affirms the truth of essential principles and attributes of the proposition upon which such holding is necessarily based; and recognizes and gives judicial effect to the *statutory* provisions which constitute the drawings a component *part* of the *specification.*

When the drawings are filed they *ipso facto* become a part of the specification by the operation of express statutory provisions; they are at once impressed with the function of descriptive competency in describing the structural constituent parts of the invention, and evidence the intent and meaning of the inventor in all subsequent proceedings relative to the invention, both prior and subsequent to the issuing the letters patent. They constitute a perspective description of the invention coördinate with the written descriptive recitals of the specifications, so long as there exists no irreconcilable conflict or repugnancy between such descriptions.

Such dual descriptions, as an entirety, under the provisions of the statute constitute an effectual bar to the introduction of any new invention; as also the sole test of the sufficiency of the description of the invention in all proceedings instituted upon the letters patent embodying the same, in all cases where the question as to the sufficiency of the description of the invention is involved.

In determining the sufficiency, in fact or in law, of the description of the invention, the provisions of the statute contemplate that both of such coördinate descriptions shall be construed together as an entirety, and full effect be given to each description, so long as they are not in insuperable conflict or repugnancy.

The language of the Court, as recited above, is:

"If the drawings and specifications fail to indicate the device to those conversant with the art," etc.

Thus it appears that both drawings and written specifications are to constitute the true test of the sufficiency of the description of the invention, each supplying any imperfection existing in the other.

It is thus seen that the holding of the United States Circuit Court of Appeals of the Sixth Judicial Circuit is in direct conflict with holding of the Court in the United States Circuit Court of Appeals in the Seventh Judicial Circuit; the former Court fully recognizing the descriptive competency of the perspective descrip-

tions of the drawings, as evidencing the true intent and meaning of the inventor in letters patent; while the latter Court accords to the drawings no descriptive competency in determining the question of the sufficiency of the description of the invention in the patent; even though the written descriptive recitals of the specification expressly and in the clearest terms refer to portions of the drawings as perspectively showing the intent and meaning of the inventor.

It is therefore not only a matter of much gravity and importance, but of special urgency, that the true intent and meaning of said Sections 4884 and 4889 of the United States Revised Statutes should receive an authoritative construction by this Honorable Court.

In *Banker* vs. *Bostwick*, 3 Fed. 547 (1880), Wheeler, justice, C. C. S. D., New York, says:

"To understand these patents it is necessary to examine the drawings in connection with and as a *part* of the *specification*, and to rely on them *alone*, to some extent, to ascertain the exact *form* and *position* of some of the parts."

With respect to questions presented on pages 25, 26, 27, 29 and 30, relative to judicial cognizance of defenses not set up by the defendant:

The petition shows that no defense involving the description of the specification, including the drawing, as being to any extent insufficient or in any manner deficient.

That defendant's objection to the descriptive specification, including the drawings, were first made known in defendant's oral argument at the trial of the suit, and after the doors were closed against the production of competent and sufficient evidence in disproof of such objection or defense.

Is it, then, properly competent for the Court to take judicial cognizance of such defenses and thereby place the complainant in a position of *irremediable surprise?*

The defect in the specification, including the drawings, as held by the Circuit Court, is that of insufficiency of the descriptive specification relative to the construction of a particular part of the invention.

The defect of such specification, including the drawings, as held by the United States Circuit Court of Appeals, is that the description of the specification was made to contain less than the whole truth relative to the invention, or more than was necessary to produce the described effect, as shown in the petition.

It is thus seen that the defect of the specification, as held by

the Circuit Court of Appeals, constitutes a defense arising under provisions of part *First* of Section 4920 of the United States Revised Statutes: the provisions of which section declare that all the defenses coming within its provisions shall be set up in the answer of the defendant in suits in equity, and notice thereof be given in actions at law.

So, also, defects of the specification constituting defenses by reason of insufficient description of the invention, such as the Circuit Court recognized in this cause, in like manner, are properly comprehended in the provisions of part *First* of said section, and must in like manner be set up in defendant's answer.

Defenses arising under the provisions of part *First* of said section are further required, by the express recitals of such provisions, to contain the allegation that the description of the specification was made to contain less than the whole truth relative to the invention, or more than is necessary to produce the described effect "for the purpose of deceiving the public:" so, also, that the description of the specification was made insufficient "for the purpose of deceiving the public."

It thus appears that the United States Circuit Court of Appeals, as also the Circuit Court, took judicial cognizance of a defense in this cause, which was in no manner set up, in any pleading, on the part of the defendants:—nor any notice, nor intimation given relative thereto at any time prior to defendant's oral argument upon the trial:—and to the Court's cognizance thereof complainant made timely objection.

We submit that such judicial cognizance of such defense is, plainly, in conflict with both the letter and the spirit of the provisions of the statute.

Such judicial cognizance is also in direct conflict with the decisions of this, the Supreme Court.

In *Rubber Company* vs. *Goodyear*, 9 Wallace 788–793, the Supreme Court, in its opinion, says :

"The proposition that the patent is fatally defective because it is impossible to make merchantable goods according to the directions contained in the specification, cannot be entertained."

"The answer contains no averment upon the subject:—no such issue was tendered to the complainant :—and they have had no notice that such defense was intended to be relied upon:—in equity the proofs and allegations must correspond."

"The examination of the case by the Court is confined to the issues made by the pleadings."

"Proofs without allegations are as unavailing as such allegations without proofs, requisite to support them."

As we have already said, the complainant in this cause now before the Court was taken by irremediable surprise, by raising the defense of insufficiency of the description of the specification of the patent in argument upon the trial, no intimation or notice of which was set up or given in defendant's pleadings, nor in any other manner.

The result of such judicial cognizance of such an impromptu defense was, practically, to *deprive* complainant of his *constitutional* privilege of having his *day* in court, so far as the questions of *fact* were involved in such defense ;—so, also, as to the law applicable.

And it is true that such questions of fact were so involved in such defense ; that complainant could and would have disproved such defense by competent and sufficient evidence, showing that any competent mechanic, even though unskilled in the art, would not in fact have had the slightest trouble in construction of the invention by following the written description of the specification and the perspective description of the drawings ; that any such mechanic would not find the slightest trouble in constructing the same by simply following the perspective description of the drawings, just as defendant constructed his infringing machine.

So, also, the particular defense, which the Circuit Court of Appeals took judicial cognizance of, upon its own motion, and which for the first time was presented in the Court's opinion, relative to the *implied non-limitation* of the invention, and its *results* as enlarging the *scope* of the invention, so as to presumably cover the operative scope of prior devices.

As this particular defense was not in any manner referred to by defendant in argument, nor otherwise, the plaintiff had no opportunity of making any argument relative to the same, and was also deprived of his day in court with respect to such defense, both as to the *fact* and to the *law* involved in the same.

The complainant—if opportunity had been open to him by the proper prior pleading—could and would have shown by competent and sufficient evidence, that it is mechanically as well as geometrically impossible, under the structural organism of the invention, to adjust the cutting edges of the knives to the plane of the curved surface of the disks or groove, so as to perform operative work in so low and inferior grade of work as that performed by the devices produced by defendant:—that the cutting edges of the knives meet the material in a position utterly unattainable under the organic plan of said devices:—and that the knives in such adjusted position produce work with smoothness fitted to go directly to the paint-shop.

That for such reasons the operative scope and work of said devices cannot in fact nor in law be said to be and exist in the line of "approximation," nor of that of "more or less:" that the invention operates on another and different plane from that of said devices:—that the latter cannot approach the former upon any line of "approximation" or operative progression, nor that of "more or less."

Therefore the complainant has not, in a very material and substantial sense, had his day in court relative to the primary and real, yet *unpleaded* and *unargued*, defenses upon which the validity of complainant's patent was negatived by the Court's decision.

We respectfully submit that these questions are not only of much gravity and importance, but of the utmost moment and urgency:—that they in fact involve the constitutional right, under the constitution of the United States, of every citizen to be protected in the rights of property until deprived of the same by due process of law, which includes the privilege of presenting competent evidence, upon proper issues, in defense of such right:—as also, the law applicable thereto.

Those rights the complainant has been deprived of, in a most material and substantial sense, by the Court taking judicial cognizance of defenses which constitute *no* part of the *record*, upon this cause was tried, and with respect to which the complainant has never had the opportunity of disproving by competent evidence, nor had his day in Court with respect thereto.

Bates vs. *Cox*, 98 Wallace, 31–48.

Imhauser vs. *Buerk*, 101 U. S., 660.

Rosmer vs. *Simon*, 95 U. S., 214.

Loom Co. vs. *Higgins*, 405 U. S., 580.

In Loom Company vs. Higgins, *supra*, the proposition was urged upon the Court to the effect that the defense of insufficiency of the description of the invention is comprehended within the provisions of part *First* of Section 4920 of the Revised Statutes, and as one of the special defenses set forth in the provisions of said section, and which requires both *allegation* and *proof* that the defective description was made "for the purpose of deceiving the public:"—that without such allegation and proof such defense could not be maintained; that the provisions of part *First* of said section necessitated such a construction, in view of the modification made in the Act of 1870 in such statutory provision, as the same existed in 1793.

The Court, in its opinion, says: "Counsel argues that as the

law now stands the plea insufficient description cannot be made, unless made with the qualification of fraudulent intent:—because the only purpose it has, under the present law, is that of a defense to the action:—and that it still requires the allegation of fraudulent intent to deceive the public."

"There is plausibility in this argument, and if it was necessary to the decision of this case it might give us some embarrassment."

As this question still remains unsettled, it becomes a matter of much gravity and importance that the same should be finally settled by this Court.

With respect to questions on pages 23, 24, 25, 27, and 28 of the petition, relative to the effects or results of *implied* non-limitation:

It is settled by the authorities that that no *implied* non-limitation of the invention to the particularly described form, dimension, or relative juxtaposition in combination, will have the effect to negative the validity of the invention, as the same is fully, clearly and exactly described in the specification, including the drawings:—*unless* the scope of the invention is thereby so extended beyond the real invention thus fully and clearly described, as to constitute a material and substantial part of the invention, of which the inventor is not truly the original and first inventor:—and *unless* the inventor fails to take advantage of the provisions of Section 4922 of the United States Revised Statutes, relative to filing a disclaimer, within such proper time as the law allows, after the necessity of such disclaimer has been judicially made known to the inventor.

We are unable, however, to find any authority for holding, that a mere *implied* non-limitation, without more, the only result of which is to produce inferior operative work in proportion to the extent of the variation in form, dimension, or relative juxtaposition in combination, caused by such non-limitation, can constitute such a material and substantial part of the invention, as to negative the validity of the invention: or render a disclaimer necessary.

With respect to questions on page 32, relative to the novelty of the invention being negatived by the production of machines, patents, and publications, with a view of showing anticipating matter collectively, as described in the aggregate:

We believe it to be true, that no one of the devices and patents when taken severally contains, under the most liberal view in favor of the defendant, anticipating matter covering the whole invention, as contained in the Caverly patent.

We therefore present said questions in view of the decisions of this, the Supreme Court:—and of showing that the decision of the

Court below, in these particulars are in direct conflict with this Court's decisions.

Bates vs. *Cox*, 98 U. S. 31–48.

Imhauser vs. *Buerk*, 101 U. S. 960.

Parks vs. *Booth*, 102 U. S. 96–104.

With respect to questions on page 33, relative to the competency of the Court to determine the question of anticipation, without reference to the descriptive recitals of the specification, including the drawings :

As the Court practically excluded from its consideration the descriptive specification and drawings:—its decision relative to anticipation was of necessity based upon the summary recitals of the claims.

We have therefore presented said questions for the Court's consideration.

With respect to the A. A. Wilder patent, pages 32–33 :

The Court plainly regarded this patent as being anticipating matter, against complainant's timely objection.

We therefore present said question to the Court.

The reception of said patent in evidence as anticipating matter was against complainant's timely objection.

We therefore present said question to the Court.

The reception of said patent in evidence as anticipating matter is in direct conflict with the provisions of said Section 4920:—and with the decisions of this Court.

In view of the showing made in complainant's petition, and of the foregoing considerations, we respectfully ask the Court to grant the proper order, directing a writ of certiorari to be issued as prayed in petition. Respectfully submitted,

D. B. NASH, *Solicitor for Petitioner.*

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Supreme Court of the United States.

OCTOBER TERM, A. D. 1895.

No. 877.

HERSCHEL CAVERLY, Administrator, Etc.,
vs.
DEERE & COMPANY.

Petition for Writ of Certiorari.

BRIEF IN REPLY TO PETITION.

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BRIEF IN REPLY TO PETITION.

The petition for a writ of certiorari is based upon substantially the same grounds that were urged before the United States Circuit Court of Appeals upon an application to that court for a rehearing of the cause, which petition was denied.

The patent involved is for a very simple piece of mechanism, viz., a rotary cutter-head primarily designed for dressing or smoothing bent plow handles, and is capable of being described in fewer words and very much simpler language than that adopted by the petitioner in his voluminous petition and argument. Briefly, the invention sought to be covered by the patent is a cylindrical head having a groove in its periphery, into which groove from the sides of the head project knives or bits that cut the handle that is placed in the groove as the head rotates, the shavings or chips passing away through openings in

the sides of the head opposite the knives or bits—exactly as in the ancient and ordinary style of carpenter's plane, to which, indeed, reference is made in the specification of the patent, as showing the similarity in principle existing between the two devices. In speaking of the knives the patentee says (line 37, p. 2 of the specification) that the cutting edges of the knives are presented "similar to the manner in which plane-bits are secured to the plane-frame."

The chief cause of complaint that the petitioner alleges is that the Court of Appeals did not give proper consideration to the drawings of the patent for the purpose of finding that the invention of Caverly lay in setting the cutting knives at the exact angle of forty-five degrees, notwithstanding the fact that the specification is silent *as to the exact angle* at which the knives should be set. The only language used in the specification, from which it can be *inferred* that the knives should be set at this particular angle of forty-five degrees, is in the description of the figures of the drawing, where, in referring to figure 3, it is stated:

> "Fig. III is an edge view of one-half of a cutter-head, with parts cut away at *x x* in Fig. II to show the adjustment of the knives."

And also where, in speaking of the knives, it is stated:

> "The knives are adjusted to the disks of the cutter-head upon sharply-inclined beds formed in one end of the openings in the disk, thus presenting the cutting edges of the knives diagonally to the plane of the curved portions of the disks, *as shown in Fig. III.*"

These two references to Fig. III are, in the opinion of counsel for petitioner, sufficient basis or warrant for the court holding that the angle of the cutters or knives must

be *exactly forty-five degrees*, as he claims that by means of a quadrant it will be found to be the angle shown in said Fig III. Counsel says (p. 15 of petition), in speaking of said Fig. III as being a diagram or pattern to be followed:

> "And when it is desirable to ascertain the particular quantity of any diagonal pitch or angularity, expressed in numerical degrees, the same is speedily secured by applying to the pattern the carpenter's quadrant of degrees."

The prior devices in evidence, and to which the court in its opinion referred, are exact anticipations of the patent sued on, unless the patent in suit be construed as being for a cutter-head having its cutter-knives or bits placed in the head at *the exact angle of forty-five degrees*, and there is nothing in the patent other than the quoted language referring to Fig. III that in any manner refers to the degree at which the knives shall be set. Counsel for petitioner, by his petition herein, admits that his case rests on this matter of giving to his patent a construction wherein the knives are limited to the particular angle stated, although such was not his original position, as we shall show. That he is standing on this exceedingly narrow ground is shown by the following quotations from his petition.

On page 15 he says:

> "This being true, the perspective diagram, thus being designated by the descriptive specification for that purpose, should be construed and held as showing the particular arithmetical quantity of diagonal pitch or angularity which it perspectively exhibits and which is, in fact, according to the evidence, 45 degrees.
>
> "Any other holding would be clearly inharmonious with the spirit and beneficient purposes of the Patent Act."

On pages 35–6 he says:

> "It is thus seen that the descriptive recitals of the specification *expressly recite* that the knives are adjusted to the disks upon sharply inclined beds; and then such recitals further expressly and specifically refers to Figure III, of the drawings, as showing and exhibiting the particular *quantity* of *diagonal pitch* of such sharply-inclined beds, at which the cutting-edges of the knives are presented to the curved portions of the disks or groove.
>
> "The inventor thus, in *express* verbal recitals in the descriptive specification, constituted Figure III as a descriptive perspective practical diagram or pattern showing the quantity of diagonal pitch at which the knives were to be adjusted."

(The italics are in the petition.)

On page 39 he says:

> "That the perspective description of the drawings, perspectively describing, in fact, in like manner as a pattern, any particular form, dimension, quantity, or juxtaposition in combination of particular structural constituent parts of the invention, constitutes an equivalent of a description thereof expressed in terms of arithmetical measurement or mensuration."

That the Circuit Court and the Circuit Court of Appeals made no mistake in decreeing the patent invalid for want of invention over the prior exhibited devices will be at once recognized when it is considered that the old cutter-heads, known as the "Moline Plow Cutter-Head," "Grand De Tour Head" and "Louisville Head," were piece for piece and part for part like the head of the patent, except that their cutter-knives were not at *the exact angle of forty-five degrees.* On the question of invention in changing the angle of the knives the Circuit Court (Judge Blodgett) says—52 Fed. Rep., p. 763:

> "For some reason the cutting bits in the Grand de Tour head were set with but a slight incline to

> the face of the work. The Louisville, Avery, and the Moline cutters were set at something more than 45 degrees; some of the complainant's witnesses say they were set as high as 60 degrees, but whether these knives are set at 45, 60, 80 or 85, it is but a matter of more or less, which was left to the judgment of the mechanic who constructed the machine, and is not a matter of invention. It was not new to set plane irons, or other cutting tools, at an angle of 45 degrees, but, on the contrary, that was a very old mode of setting them. 'It is the invention of what is new, and not the arrival at a comparative superiority or a greater excellence in that which is already known, which the law protects as exclusive property, and which it secures by a patent.' *Smith* v. *Nichols*, 21 Wall., 112. The proof shows that all these old cutters worked, and worked fairly well; that a great deal of work was done upon them. It may be that the Caverly cutter-head is better by reason of the change in the angle of the cutters, but 'the change was only in degree, and consequently not patentable.' *Guidet* v. *Brooklyn*, 105 U. S., 550."

And on the same point the Circuit Court of Appeals says (13 C. C. A. Rep., p. 456):

> "the fact would be evident—that knives set at any angle, say between 40 degrees and 50 degrees, and perhaps within wider limits, will work as well, approximately, as if set at the exact angle of 45 degrees. It follows that there is no patentability in that particular, even if it be conceded that the drawings of the patent are to be regarded as working plans, showing the particular angle stated—a proposition which, in view of the fact that the specification is silent on the subject, is not deemed tenable. Every mechanic accustomed to the use of the chisel and the joiner's plane is familiar with the principles upon which such knives work, and if, in a plane or in a cutter-head, he should find a knife which stood at an angle of 80 degrees scraping instead of cutting, as it is said the knives in some of the old machines did, he would be at no loss to apply the remedy. It

> is, of course, true that certain geometrical propositions are applicable to knives in such a machine standing at the angle of 45 degrees, which would not be applicable if the angle were different, and, conversely, if the angle were different the geometrical propositions incident thereto would not be applicable to knives inclined at the first-named angle; but patentability does not follow in the one instance more than in the other."

It would seem from the language of the petition itself that nothing could be more absurd than to claim that an invention was made in changing the angle of the knives or cutters from one degree to another. Counsel says in his petition (p. 6):

> "It is shown by expert testimony, and with respect to which there has been no contrary contention, that it is an established principle or fact in practical mechanics, that it is essential, in order to produce the most perfect planing results and effect, that the cutting-edges of the knives should be presented to the material to be dressed upon a uniform diagonal pitch or angularity substantially of 45 degrees, and upon a line running directly transversely to the axis and grain of the material to be dressed, together with an accompanying avenue for the easy escape of the chips—and that any substantial change or variation from 45 degrees of such pitch or angularity, by either increasing or diminishing the quantity of the same, impairs the operative work of the knives and produces inferior results in proportion to the extent of such change or variation."

And to the same effect, on pp. 13–14, as follows:

> "The final result of such a geometrical combination of mechanical constituent parts or of constituent forces is to inevitably cause the cutting-edges of the knives to perform their planing work in and upon a plane being tangent to the plane of the curved surface of the groove, 'similar to the manner in which plane-bits are secured to the plane-frame;' and to produce the same operative results as is produced by

the plane-bits in the carpenter's plane when applied to *straight* planing surfaces.

"The particular relation in which the cutting-edges of the knives in the carpenter's plane sustain to the planing surface of the plane-frame and to the parallel plane surface of the material to be dressed, *is established in practical mechanics as the standard of excellence in planing work.*"

By the evidence and by these statements of petitioner's counsel it thus appears that all that is shown in the patent in suit—not described as being of the essence of the invention, but only *shown*—is that the knives in the cutter-head are set at the angle which is admitted by witnesses and counsel to be well known to be the best angle for good work. And yet petitioner is asking for a review of this case in order to establish the fact that the patent discloses patentable subject-matter over precisely the same kind of earlier cutter-heads having knives set at a slightly different angle, and this notwithstanding the fact that there is nothing in the specification of the Caverly patent relative to the invention being dependent upon any particular angle of the knives.

The difference in degree of angularity between the knives of the patent and those of the prior devices mentioned in the opinion of the court is a difference in degree only, which will not be considered, especially when the record shows that the old machines in evidence were operated for many years satisfactorily.

That a change in the angle of the knives from the angle *shown* in the patent is not a departure from petitioner's supposed invention is shown by the following quotation from the testimony of petitioner's principal expert, Mr. Bartlett:

"X 49 cross interrogatory: Would a cutter-head having the knives set at a different inclination and

angle, but at an inclination and angle that would permit of their performing the work in a proper manner, be the equivalent of a cutter-head having the knives arranged as shown in the patent?

("Complainant's counsel objects to the question for the reason that the question assumes in advance, that the specifications in describing the adjustment of the knives fixes a definite and fixed degree of angle or inclination **which it does not do so, but permitting the knives to be set in any degree which will do proper work**, and also for the reason the question is not proper cross-examination.)

"Ans. The principle would be the same. It would not change the principle of the cutter-head. The angles could be changed a little."

The objection by petitioner's counsel is also interesting in view of the position now taken by him, and to which in fact he is driven by the defendant's exhibits.

Petitioner's only hope is to have the claims of his patent construed as defining combinations which include cutter-knives set *exactly at an angle of forty-five degrees*, although it must be perfectly apparent that there cannot be any invention in so setting them after what had been previously done in the same art. However, even if the patent could be held to be valid when so restricted, the case must fall to the ground, as there is nothing in the record to show that defendant's machine has knives which are set exactly at an angle of forty-five degrees. The nearest approach to a showing on the question of infringement is found in the testimony of petitioner's expert, Bartlett, who was asked and answered as follows:

"Int. 146. You may state whether or not, in your opinion, in view of your examination of said specifications, claim and drawings relating to the machine therein described, and in view of your examination of defendant's machine which you saw at its shop, there is any material or substantial difference between

the former machine and the latter machine with respect to their mechanical principles and modes of operation embodied in said machines?

"Ans. No, sir; I don't think there is."

This kind of testimony is certainly not definite enough to warrant a finding that defendant has a machine with knives set at the exact angle of forty-five degrees. Especially is this true when the answer of the same witness to X-Int. 49 is considered, in which he says: "*The angles could be changed a little.*"

There is the other objection, which has been referred to herein, and to which the Court of Appeals has referred in its opinion, viz., that there is nothing in the specification of the Caverly patent to show that the inventor intended to define or limit himself to *any* particular angle. That this is a serious objection will be seen by reference to Section 4888 of the Revised Statutes, which provides that the inventor in his specification "shall *particularly point out* and *distinctly claim* the part, improvement or combination which he claims as his invention or discovery." It certainly cannot be contended that a statement that the knives are adjusted upon "sharply-inclined beds" necessarily means that they must be fixed at the precise angle of forty-five degrees. As to the claims, they do not even specify that much as to how the knives are placed.

Petitioner, finding that the only possible chance of avoiding the force of the references that had been brought against him, is asking the court to virtually reissue his patent, and hold it to be for combinations of devices which include cutter knives set at a particular angle, in utter disregard of the fact that not the slightest foundation for such a proceeding can be found in his specification. The

language of the claims, as they are drawn, has a plain meaning, and cannot be disregarded.

Kittle v. *Merriam*, 2 Curtis, 475.

Ames v. *Howard*, 1 Robb, 689.

That a patent cannot stand for such slight differences as exist between the Caverly cutter-head and those of the prior art seems to us not to require much argument. Caverly's *idea* to set the knives as any ordinarily skillful mechanic would set them was a good one undoubtedly, and resulted in producing smoother work, but as he did not embody his idea in a new machine, or make a new combination to carry out his idea, he is entitled to no monopoly.

That this is so, see *Pencil Co.* v. *Howard*, 20 Wall., p. 507, where the court says:

> "An *idea* of itself is not patentable, but a *new device* by which it may be made practically useful is. The *idea* of this patentee was a good one, but his *device* to give it effect, *though useful*, *was not new*. Consequently he took nothing by his patent."

As showing that the position taken by petitioner's counsel in his petition, relating to the supposed patentable improvements in the Caverly construction over the devices of the prior art, is not sound, we quote the following from Curtis on Patents, Sec. 50:

> "The question will arise, then, in reference to any supposed invention, in what is the novelty to consist? or, in other words, what is the nature of the change that has been effected, which will entitle it to the protection of a patent? It is a leading general principle on this subject, as we have already seen, that *there must be something more than a change of form*, or of the *juxtaposition of parts*, or of the *external relations* of things, or of the *order or arrangement* in which things are used. The change, or the *new combination* or relations, *must introduce or embody*

> *some new mode of operation*, or accomplish *some effects* not before produced. This is what is called, in the judical sense, introducing a new principle."

This section was approved and enforced by this court in *Reckendorfer* v. *Faber*, 92 U. S., p. 356, as follows:

> "The law requires more *than a change of form*, or *juxtaposition of parts*, or *of the external arrangement* of things, or *of the order in which they are used*, to give patentability. Curtis on Pat., Sec. 50; *Hailes* v. *Van Wormer*, 20 Wall., 353. A double use is not patentable, nor does its cheapness make it so. Curtis, Sects. 53, 73. An instrument of manufacture which is the result of mechanical skill merely is not patentable. Mechanical skill is one thing: invention is a different thing. Perfection of workmanship, however much it may increase the convenience, extend the use, or diminish expense, *is not patentable*. The distinction between mechanical skill, with its conveniences and advantages and inventive genius, is recognized in all the cases. *Rubber Tip Pencil Co.* v. *Howard*, and other cases, *supra;* Curtis, Sect. 72*b*."

Petitioner's counsel, on page 4 of his petition, states his understanding of the basis of the opinion rendered by the Court of Appeals as follows:

> "The decision of the court below, as complainant understands it, is based, primarily, upon its particular construction of the descriptive specification of said Letters Patent, including the claims, and perspective drawings, as the same appears upon their face."

This can only mean that such court would not adopt the view that complainant had made an *invention* in *showing* a cutter-head having its cutters or knives set at an angle of forty-five degrees. A reading of the opinion of the Circuit Court and that of the Circuit Court of Appeals in this case will show that a most careful examination into the merits was made in each in-

stance, and that the decree dismissing the bill for want of equity was entered because no doubt whatever was entertained of the fact that the prior devices exhibited amply showed everything shown, described and claimed in complainant's patent, except possibly the *precise degree* of angularity of the cutting knives.

Counsel for petitioner, on pages 43–4 of his petition, makes a remarkable statement, which we do not believe to have have any foundation. The statement is:

> "Your petitioner further states that there are no other provisions in the whole Patent Act with respect to the interpretation of which there has been such conflict and non-uniformity and diversity of views and holdings by the several United States Circuit Courts and Courts of Appeal as the provisions of said Sections 4888, 4884 and 4889 of the United States Revised Statutes; that each one of said courts has proceeded in its adjudication according to its own views of the true intent and meaning of said sections without regard to precedents in other courts of coördinate jurisdiction; all of which has rendered the administration of justice, so far as the construction of the provisions of said sections is concerned, ununiform and diverse; and that such non-uniformity and diversity of judicial views and holdings of the courts have had the effect to create great uncertainty and doubt with respect to the validity of a very large portion of letters patent issued by the Patent Office."

Only one case is cited by counsel to bear out the above statement, and that is the case of *Michigan Central R. R. Co.* v. *Consolidated Car Heating Co.*, 67 Fed. Rep., 121, which is referred to on page 40 of the petition; and on that page and page 41 counsel sets forth six propositions which he believes are established by a few words found in the court's opinion. From the propositions of law thus found by him to be established by the Michigan Central case referred to he deduces the following:

> "That if this cause had been brought by your petitioner in the Sixth Judicial Circuit instead of the Seventh Judicial Circuit, the descriptive specification, including the drawings, in the letters patent sued upon therein would have received a judicial construction directly the reverse of that judicially declared in said Seventh Judicial Circuit, and such letters patent would have been sustained."

That drawings attached to a patent constitute a part of a specification no court disputes, notwithstanding petitioner's statements; and that the drawings must be considered in connection with the specification is also true, and is specifically stated by the Court of Appeals for the Sixth Circuit in the Michigan Central R. R. case cited by petitioner, as well as by the Circuit Court of Appeals for the Seventh Circuit in the case at bar, as appears by the following quotations. In the Michigan Central case (p. 124) it is stated:

> "*Neither of his claims mentioned any inclination of these pipes.* If the specifications had done so, that feature could have been read into the claims, for the claims refer to the specifications, which, as we have already said, include the drawings. But as the specifications give no indication of such feature of construction, but do indicate parallel pipes, the claims must be construed accordingly."

In the present case the Court of Appeals for the Seventh Circuit said (13 C. C. A. Rep., p. 456):

> "While it is argued from the drawings, and geometrically, that the angle of the knives in the patent is exactly 45°, it is at the same time asserted, *and is clearly true*, that there is in the specification nothing showing that the inventor intended to limit the pitch of the knives by the precise number of degrees indicated by the drawings, but only to illustrate distinctly 'such angularity as was deemed productive of the most perfect results.'"

From the foregoing quotations it will be seen that both of said courts give due effect to the drawings attached to the printed descriptive matter, and that petitioner's claim that if his case had been in the Sixth Circuit instead of the Seventh his patent would have received a different construction, is wholly unfounded.

The argument set forth in the petition is replete with geometrical terms and demonstrations of geometrical problems, all tending to show that by a machine having its cutters set at the precise angle shown in figure 3 of the Caverly patent smoother, better work can be performed than when the angle is a little different, as in the older machines. We venture to suggest that if a differentiation of machines by geometrical demonstration, as here attempted, should meet with the sanction of the courts, it would at once put an end to patent litigation, as it would be a strange case indeed where, tested by such rules, a defendant could not escape the charge of infringement, or a complainant prove that the machine of his patent differed radically from the patented and unpatented devices of the prior art.

It was stated by this court in the case of Lau Ow Bew, 141 U. S., p. 587, that "It is evident that it is solely questions of gravity and importance that the Circuit Courts of Appeals should certify to us for instruction." It is believed that the present case is not of that character, and that, therefore, the writ prayed for should be denied.

L. L. Bond,
A. H. Adams,
C. E. Pickard,
J. L. Jackson.